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ABSTRACT

The instructional materials in this document include observational schedules for children ages 3-7 and diagnostic/instructional procedures in language arts and mathematics for 5-year-olds. The observational schedules are designed to assist teachers in judging the developmental levels of beginning school children. The schedules are intended as broad assessment guidelines. The diagnostic/instructional procedures include very specific suggestions in teaching mathematics from a Piagetian orientation. Specific activities for children are described in detail. (CS)

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OBSERVATIONAL SCHEDULES FOR CHILDREN AGES THREE THROUGH SEVEN

DIAGNOSTIC/INSTRUCTIONAL PROCEDURES IN LANGUAGE ARTS AND MATHEMATICS FOR FIVE-YEAR-OLDS

PS 006899

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SOME OBSERVATIONAL SCHEDULES

FOR

FIVE-YEAR-OLDS

* * * *

SOME DIAGNOSTIC/INSTRUCTIONAL PROCEDURES

IN

LANGUAGE ARTS

* * * *

MATHEMATICS

FOR

FIVE-YEAR-OLDS

The Center for Effecting Educational Change

Fairfax County Public Schools

Fairfax County, Virginia

August 1970

FOREWORD

The instructional materials which make up this report are, first, observational schedules for children ages three through seven and, second, diagnostic/instructional procedures in language arts and mathematics for five-year-olds. They have been prepared under the Child Study Program of the Center for Effecting Educational Change (CEEC), a Title III (ESEA) agency attached to the Fairfax County Public Schools, 1967-70.

The observational schedules were prepared by Marie Bailey, a Fairfax County kindergarten teacher, who was employed for thirty days during the spring of 1970 under the Child Study Program. Mrs. Bailey was asked to peruse the literature and from it to formulate observational schedules which could assist teachers in judging the developmental levels of their beginning school children. The resultant schedules and capsule age descriptions which follow are to be considered neither as complete and precise behavioral measures nor as rigid expectancy criteria. Rather are they to be taken as broad aids to orientation as the teacher attempts to assess each child in the four developmental dimensions described, i.e., motor, social, language, and cognitive. If used as broad assessment guidelines, the observational schedules should prove a valuable contribution to the teacher as she attempts to fit her instruction to the child she is teaching.

The diagnostic/instructional procedures were designed by two other Fairfax County kindergarten teachers, Susan Hollandsworth and Joyce Moore, employed by CEEC during the summer of 1969. Before any program writing began, ample time was provided for reading and research and, although the Child Study staff was available for consultation, Mrs. Hollandsworth and Miss Moore bore the major responsibility for what was done. Maximum freedom was allowed for their exploration and formulation of ideas, content, and format. The diagnostic/instructional procedures which developed were used by their authors during the subsequent school year. Notwithstanding the limited time available for revision and evaluation, it is felt that the procedures represent a valuable contribution to language arts and mathematics curriculum for five-year-olds.

Richard J. Schillo
Coordinator, Child Study

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PART I

SOME OBSERVATIONAL SCHEDULES FOR FIVE-YEAR-OLDS

August 1970

Prepared by -

Marie Bailey

THE THREE-YEAR-OLD

The three-year-old is growing increasingly steady and nimble on his feet. He can go upstairs without help. He has less difficulty with daily routines because of increased motor ability. He can feed himself and spill very little. His jumps are limited to downward and upward leaps. His ability to climb on low-incline planks and jungle gyms, if he has access to such equipment, is usually well established. He can take care of many of his bodily needs, such as undressing himself, going to the bathroom, and washing himself.

The three-year-old is a highly self-centered individual. He can be given simple reasons and explanations. If he is angry, instead of hitting he may call names or say, "I don't like you." He dramatizes many of the everyday situations he sees.

He also enjoys singing and will make up songs to fit in with the role he is playing.

The three-year-old is interested in new activities. He needs a variety of creative activities. Completion of the task is not so important to him as the satisfaction of creativity.

THE FOUR-YEAR-OLD

The four-year-old is described as out-of-bounds. He is out-of bounds motorwise and hits, kicks, and bites. He is not capable of sitting for long periods. He uses much energy in hopping, jumping, climbing, and galloping. He is involved in vigorous outdoor play and bodily activities. He is fairly efficient at dressing and undressing himself, but eye-hand coordination is imperfect.

The four-year-old likes to defy adult commands and firmness is needed in dealing with him. His desire to help, however, is sincere, although interest may vanish quickly and he cannot take responsibility for doing chores. Fours enjoy one another. They boast, brag, talk, and make noise. The line between fact and fiction is very thin and the four-year-old enjoys imaginary companions.

Four loves to talk. He is fascinated by words. He and his peers use all sorts of silly words and then burst into laughter. The use of profanity is quite ordinary. He also enjoys periods of being read to and of looking at books. He likes complexity of illustration and an abundance and diversity of tiny details.

Toys and play materials are used in a more complex fashion, but he must have sensory experiences before he can develop concepts or ideas. He has many questions. Curiosity is a compelling side of his personality.

THE FIVE-YEAR-OLD

Five is a good age. The five-year-old is beginning to control his body and use it with purpose in mind. He is poised in his movements. His large muscles are better developed than his small muscles. His handedness is usually determined by this time and should not be changed. Hand and eye do not yet work with complete coordination but he is active and his activity is purposeful.

The five-year-old is well adjusted, stable, and reliable. He is secure within himself and not too demanding in his relations to others. He was once dependent upon an adult to tell him right from wrong; now that he is beginning to think for himself he often still needs the guidance of an adult, but he wants to conform and obey. He is improving in taking turns. He loves dramatic play and acts out family roles or the roles he sees in the world around him. He becomes realistic in his play. He may readily relate what is bothering him to a parent or teacher, but he enjoys being independent.

He is beginning to have command of language. Pronunciation is usually clear. He may pick out tunes on the piano and learn to play a few familiar, simple melodies.

He wants to learn and can perform simple tasks in school or at home.

THE SIX-YEAR-OLD

Six is far from sedentary. He likes to manipulate, make, feel, and experience with his hands. He has a need for physical activities and concrete experiences using all his senses and muscles. He does not need a nap but he does need a rest time to recover from loss of energy. He is susceptible to contagious diseases. He enjoys using his hands but the small muscles of his arms and hands are not completely developed. Large muscle activity should be engaged in frequently.

Six sees himself as the center of his world. He tends to be selfish and has a great need to win and be first. He constantly needs to be praised. He has a difficult time making decisions and should not be expected to make too many. He enters upon activities with impulsive enthusiasm. Six is an age of transition, less cooperative and less stable, but he can take much responsibility for his own routines.

He enjoys his own phonograph records and dramatic play is still important.

He is eager to learn. Concrete experiences and active participation are ways he learns. He is constantly observing, listening, and experimenting.

THE SEVEN-YEAR-OLD

Although seven is more cautious in attempting motor tasks, he goes to extremes in outdoor play. His physical growth continues slowly and steadily. He is becoming more skillful in using small muscles and coordinating his hands with his eye. A healthy seven is full of energy.

Seven is happy by himself, although he is sensitive about whether he is liked or not. He is becoming critical of himself and needs support, encouragement, and guidance from the adults around him. He shows control in many ways. He is concerned about right and wrong.

Language develops rapidly. He still enjoys dramatic play in and out of school. He has a craving for piano or dancing lessons and likes to use various percussion instruments.

He reaches out for new experiences, trying to relate himself to his enlarged world. He wants to use his hands to explore, to make things, and to learn. He has learned to do many things for himself but often dawdles and dreams while doing them. He may have difficulty completing a task but completion is a real concern to him. He will try to master an activity by performing it over and over.

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SOCIAL DEVELOPMENT					Checklist				
3	4	5	6	7	3	4	5	6	7
Happy and contented	Argumentative	Poised, serious, and realistic	Highly emotional	Serious, absorbed, and thoughtful					
		Has mostly outgrown jealousy and selfishness							
Less crying and less show of temper	Much crying	Less crying	Tears and tantrums	Less crying, becomes moody or sulky					
Play may be stormy and quarrelsome	Excluding, tattling, disputing, and quarreling	Sometimes too rough, too bossy, cries too easily	Quarreling and physical combat	Much fighting but less than at age six					
			Cannot bear to lose at games and will cheat	Learning to lose but must win at the end					
"I" becoming stronger	Expanding sense of bragging and boasting	Self and others taken for granted	Is center of his own universe	More aware of and withdrawn into himself					
Highly self-centered, "all mine"		Can't wait too long in taking turns	Continues to want to participate without too long a wait	Can wait a turn without much uneasiness					

SOCIAL DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
Enjoys friendly humor	Silly, boisterous humor	Enjoys Slapstick humor, which he starts	May not be too responsive to humor	Little sense of humor and cannot be handled with humor					
		Slight interest and ability in making and carrying out group plans	More interest in proposed activity of group when making group plans	Beginning to carry plans over from day-to-day					
Solitary and parallel play	Associative play	Cooperative play	Cooperative play	Cooperative play					
	Rough and careless with toys	Destructive in play	Destructive with objects						
	Blames inanimate objects for own wrong doings	Denies fault if questioned directly	Usually denies fault if questioned directly	Directly accuses others					
		Takes some responsibility for his own actions in differentiating between right and wrong							
			Likes responsibility						

SOCIAL DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
Loves to conform	Less anxious to conform, things must go his way	Reliable, stable, and well-adjusted	Extremely aggressive physically and verbally	Less aggressive behavior					
Responds to directions, tries to please and conform	Less anxious to please, obey, and conform	Needs, invites, and accepts some supervision and direction	Responds slowly or negatively to demand	Does not respond promptly, often does not hear directions					
	Less sensitive to praise and blame	Likes approval but does not demand praise	Loves praise and wants approval	Praise less necessary, may be embarrassed					
		Takes care of own possessions							
		Still finds it difficult to recognize ownership	More aware of personal rights of owner	Continues to grow in recognition of personal and community rights					
Either talks or eats	Combines talking and eating well	Very talkative and sociable at table							
Plays with imaginary playmates	Plays with imaginary playmates								

SOCIAL DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
		Dramatics have a prominent part in spontaneous play							

LANGUAGE DEVELOPMENT

3	4	5	6	7	Checklist 3	4	5	6	7
Tendency toward stuttering									
Traces of infantile speech	Tends to talk in infantile manner	Talks without infantile speech							
Can correctly articulate 63% of the sounds	77% of sounds are articulated correctly	88% of sounds articulated correctly	89% of sounds articulated correctly						
Speaking vocabulary averages 896 words	Speaking vocabulary averages 1540 words	Speaking vocabulary averages 2072 words	Speaking vocabulary averages 2562 words						
Keen interest in new words		Has interest in new and large words	Likes to use big words						
		Can define simple words							
Knows a few rhymes	Likes nonsense words, silly language, and rhyming	Verbal play is still interesting							
	Grammatical usage remarkably accurate, organization of subjects, predicates, and adjectives								

LANGUAGE DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
Answers simple questions	Uses conjunctions, understands prepositions								
Speaks in sentences	Enters the more complete sentence stage	Uses all types of sentences including complex	Almost every complete form of sentence structure appears	Written language follows					
Mean length of a sentence, child to adult, 4.1 words	5.4 words	5.7 words	6.6 words	7.3 words					
	Learns to use words to express ideas and feelings	Uses language fluently and correctly		Carries on vivid conversation					
Talks but lacks ability to control situations through language	Talkative, boasts, and exaggerates	Uses language with self-control	Uses language aggressively to threaten, argue, etc.	Uses language to constantly complain, "nobody likes him," etc.					
Linguistic expression of experiences is limited	Discovers some words and expressions get reactions from adults and amuse peers	Uses language efficiently, following sense of social standards and limitations of use							

LANGUAGE DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
	Profanity and mild obscenities		Uses slang and mild profanity	Uses slang and cliches					
		Can recall common experiences							
Communicates with one person at a time			Communicates with groups						
			Uses telephone	Social telephoning					
Many questions pointless	Questions at a peak	Questions more meaningful		Questions asked require accurate, informative answers					
Confusion between fact and fantasy			Increased ability to differentiate between fantasy and reality						

3	4	5	6	7	Checklist 3	4	5	6	7
Good uniformity of length, height, and width of step, with heel-toe weight transfer well established	Child has almost achieved adult style of walking								
Walking Board: 8" long, 24" wide, and 4" high									
Balance on a walking board, alternates feet part way along board, CA 3 yrs. 2 mths.	Balance on a walking board, alternates feet full length, CA 4 yrs. 8 mths.	Balance on a walking board, walks length in 6-9 seconds	Balance on a walking board, walks length in less than 8 seconds, CA 6 yrs. 8 mths.						
Ascends 11 steps alternating feet without support by CA 3 yrs. 5 mths.	Descends 3 steps, alternating feet without support by CA 4 yrs. 1 mth., descends 11 steps by CA 4 yrs. 7 mths								
Between 2 to 3 years, child achieves ability to stride and run smoothly but lacks control in stopping or turning quickly		Achieves starting, stopping, and turning control in running	Adult manner of running is reasonably well established						

MOTOR DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
	Skillful jumper at CA 4 yrs. 6 mths.	Good mastery of jumping skills							
Jumps from [illegible]1 3/4" height									
Distance jump 14 1/4" to 23 2/3"	Distance jump 23 1/2" to 33 1/2"								
Hops on both feet 1 to 3 hopping steps by CA 3 yrs. 2 mths, 10 or more hopping steps by CA 3 yrs. 6 mths.									
Hops on one foot 1 to 3 hopping steps by CA 3 yrs. 7 mths.	Hops on one foot 7 to 9 hopping steps by CA 4 yrs. 7 mths.	Hops on one foot 10 or more hopping steps by CA 5 yrs.							
		Learns to gallop	Skillful gallop at 6 1/2 yrs.						
Early skipping movements are noticed, with		Alternate foot pattern of skipping is achieved							

MOTOR DEVELOPMENT (Cont.)					Checklist				
3	4	5	6	7	3	4	5	6	7
a skip on one foot or a walking pattern by CA 3 yrs. 7 mths.									
			Kicking a full leg back swing which includes an accompanying forward body lean						
Least mature throw involves movements of the arm and body which are confined mainly to the anterior-posterior plane	Execution of both arm and body movements in a horizontal plane	Introduction of a step forward with the right foot as the ball is delivered with the right hand	Boys only by CA 6 yrs. 6 mths., weight is transferred to the right foot during preparatory phase with left foot moving forward and receiving weight during delivery						
		Proficient at throwing a ball							
Throws large ball (16 1/4") distance of 6 to 7 feet by CA 3 yrs. 7 mths.	Throws large ball (16 1/4") distance of 8 to 9 feet by CA 4 yrs. 5 mths.	Throws large ball (16 1/4") distance of 10 to 11 feet by CA 5 yrs. 3 mths.	Throws large ball (16 1/4") distance of 12 to 13 feet						

MOTOR DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
Throws small ball (9 1/2") distance of 8 to 9 feet by CA 3 yrs. 8 mths.	Throws small ball (9 1/2") distance of 10 to 11 feet by CA 4 yrs. 4 mths.	Throws small ball (9 1/2") distance of 14 to 15 feet by CA 5 yrs. 5 mths.	Throws small ball (9 1/2") distance of 16 to 17 feet by CA 6 yrs.						
Catches large ball (16 1/4"), elbows in front of body, successfully in 2 or 3 trials by CA 3 yrs. 8 mths.		Catches large ball (16 1/4"), elbows at side of body, successfully in 2 or 3 trials by CA 5 yrs. 8 mths.	Proficiency in catching						
Catches small ball (9 1/2"), arms straight, with success in 2 or 3 trials at CA 3 yrs. 1 mth.	Catches small ball (9 1/2"), elbows in front of body, with success in 2 or 3 trials at CA 4 yrs. 2 mths.								
Can bounce large ball (16 1/4") 4 to 5 feet, using a two-hand bounce at CA 3 yrs. 10 mths.		Can bounce large ball (16 1/4") 1 to 3 feet, using one hand by CA 5 yrs. 11 mths.							
Can bounce small ball (9 1/2") for a distance of 4 to 5 feet by CA 3 yrs. 4 mths.									

MOTOR DEVELOPMENT (Cont.)					Checklist				
3	4	5	6	7	3	4	5	6	7
Has great difficulty buttoning	Able to dress and undress with little assistance	Can dress and undress without assistance	Has little interest in dressing well or even in getting dressed	Dawdles while dressing					
Puts on own shoes	Laces shoes	Laces shoes but can rarely tie	Ties shoelaces loosely	Ties shoelaces tightly					
Can pour from pitcher	Can carry liquid in a cup without spilling								
Achieving success in free slashes with scissors	Beginning to be able to follow a line in cutting with scissors	Capable of simple scissor cutting							
Spends periods of time pounding nails into soft block of wood	Pounds 3 or 4 pieces of wood together	Can achieve product with some similarity to objective	Hammers vigorously, often holds the hammer near the head	Manipulation of tools more tense but more persistence exhibited					
Rides a tricycle proficiently	Reasonable skill in the operation of pedal-operated small automobiles	Can ride small bicycle							
Use of wagon propelling with one foot now	Pulling, pushing, propelling, and coasting in wagon,								

MOTOR DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
established	child is proficient at these tasks								
	Very active	Still active, but more poised and controlled	Very active	Activity varies between active and inactive					
Likes gross motor activity	Likes to try motor activity stunts that are not too difficult	Gross motor activity well developed	Overextends himself	Shows more caution in gross motor activities					
			Proficient climber						
	Marked development in large muscle coordination	Good motor control, small muscles not so fully developed as large ones	Awkward in performing fine motor tasks	Better use of small muscles					
		Eye-hand coordination improving but still poor	Eyes not yet mature, tendency toward far sightedness	Better eye-hand coordination					
		Handedness well established							
		Pencil grasp awkward	Pencil grasp less awkward, performance laborious	Pencil, tightly gripped, often held close to the point,					

MOTOR DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
				pressure apt to be heavy					
Scribbling	Concentrated attention to drawing isolated details	Draws fairly recognizable man	Draws more details, more realistic	Draws human figures in more nearly accurate comparative sizes					
Can copy a circle	Can copy a square	Can copy a triangle	Can copy directional arrows, ⟷, at CA 6 yrs. 5 mths.	Can copy a vertical diamond ◇					

COGNITIVE DEVELOPMENT					Checklist				
3	4	5	6	7	3	4	5	6	7
Can usually count two objects with correct pointing	Counts three objects with correct pointing	Can count and point to thirteen objects	Counts to 30 or more by ones	Can count to 100 by ones					
				Can count by fives, tens and twos to 20.					
		Adds and subtracts within five	Many add correctly within ten, subtract correctly within five	Adds correctly within twenty, subtracts correctly within ten					
		Names a penny	Names coins and how many pennies in nickel and dime	Names penny, nickel, dime, quarter, and half dollar and how many pennies in each					
	Distinguishes between morning and afternoon	Can tell what day it is		Can tell time in the conventional sense--hour time, at least					
		Knows when events of day take place in relation to each other	Increasing knowledge of duration	Reads the clock					

COGNITIVE DEVELOPMENT (Cont.)					Checklist				
3	4	5	6	7	3	4	5	6	7
		Can answer "How old will you be on your next birthday" and "What day is it?"	Can answer "What time do you go to school?" and "What do you do in the spring?"						
Can repeat three digits		Can repeat four or five digits		Can repeat five digits					
Can repeat sentence with 6 to 7 syllables by CA 2 yrs. 6 mths.	Can repeat sentence with 12 to 13 syllables 1 trial out of three		Can repeat sentences with 16 to 18 syllables at CA 6 yrs. 6 mths.						
Attention span for simple situations, boys-5 1/2 minutes, girls-11 3/4 minutes	Attention span for simple situations, boys-8 3/4 minutes, girls-8 1/2 minutes	Attention span for simple situations, boys-8 3/4 minutes, girls-10 3/4 minutes							
Attention span for complex situations, boys-8 1/2 minutes, girls-14 1/4 minutes	Attention span for complex situations, boys-10 1/2 minutes, girls-15 1/4 minutes	Attention span for complex situations, boys-10 1/4 minutes, girls-12 1/2 minutes							
		Works in short bursts of energy	Does not like interference when	Works quietly and is busy for periods					

COGNITIVE DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
			working	of time					
Clay, beginning of forms, strips, balls, and cakes	Clay, increase in representation and imagination	Clay, recognizable objects, generally with purpose in mind.							
Builds structures using different shapes and sizes	Detailed constructions	Builds with large and small blocks	Blocks used imaginatively and constructively						
Places blocks in regular rows or piles	Uses blocks as part of dramatic play	Tries to duplicate actual structures around him							
Order and balance in block construction	Complicated structures combining many shapes	Sturdy structures, often combined with other materials							
			Can tell differences between two simple objects	Can tell similarities between two simple objects					
		Can play games matching pictures and forms	Plays with anagrams, dominoes, and puzzles	Plays with jigsaw puzzles					

COGNITIVE DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
Can name and enumerate a number of pictured objects				Can tell about simple relations and describe the picture					
Likes to have opportunity of choice		Has little difficulty in making choice	Has difficulty in choosing, fluctuates between two choices	Finds it somewhat easier to make choices					
			Needs concrete situations, cannot handle abstractions	Learns best in concrete terms and when he can be active while learning, little abstract thinking					
			Can solve problems if they are within his experience						
	Active imagination, shifts ideas as he paints	Begins painting with idea in mind							
Takes joy and pride in product painted	Painted products have personal value, child wants to take them home	Products usually recognizable							

COGNITIVE DEVELOPMENT (Cont.)

3	4	5	6	7	Checklist 3	4	5	6	7
		Beginning to be capable of self-criticism		Cautious and self-critical, anxious to do things well					
		Knows colors							
Beginning to match simple tones	Increase in voice control, with better idea of correct pitch and rhythm	Majority can reproduce simple tones accurately from middle C to second F above							
Can recognize several melodies	Enjoys identifying melodies	Large repertoire of songs for recognition and appreciation		Knows the tunes of familiar songs and comments if other children do not sing correctly					
Gallops, jumps, walks, and runs in fairly good time to music		Majority can skip, hop on one foot, and dance rhythmically to music							
		Has ability to discriminate between letter forms							
		Recognizes his first name in print							

COGNITIVE DEVELOPMENT (Cont.)					Checklist				
3	4	5	6	7	3	4	5	6	7
	Identifies several capital letters	Is more familiar with letters at CA 5 yrs. 6 mths.	Has interest in small as well as capital letters						
Memorizes whole stories and nursery rhymes		Identifies words and signs, such as stop, go, hot, cold, etc.	Beginning to develop reading vocabulary and to recognize word out of context	Can read sentences, recognizes familiar words easily and rapidly out of context					
			Content with whatever is going on in his immediate environment	Reaches out for new experiences					
		Likes to identify repetitious phrases or words in familiar books	Recognizes words, phrases, and maybe sentences	Reads sentences					
	May attempt to print own name	Prints first name or nickname	Prints first or both names						
	Prints a few capital letters	Prints some letters of varying sizes	Prints most of the capital letters, with several reversals	Prints or writes words and sentences in capital and small letters					
	Letters are often	Letters formerly							

COGNITIVE DEVELOPMENT (Cont.)					Checklist				
3	4	5	6	7	3	4	5	6	7
	made with many parts	made in three parts now done in two parts	Letters apt to be made in a continuous stroke						
Likes riddles and guessing games	Likes nonsense rhymes	Likes animals which behave like humans and poetry		Well enough grounded in reality to recognize difference between an imaginary and a true story					
Enjoyment of the familiar, with more details and less repetition	Delight in humorous stories	Beginning to enjoy fanciful stories	Likes to hear stories about himself	Has more individual reading interests					

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PART II

SOME DIAGNOSTIC/INSTRUCTIONAL PROCEDURES

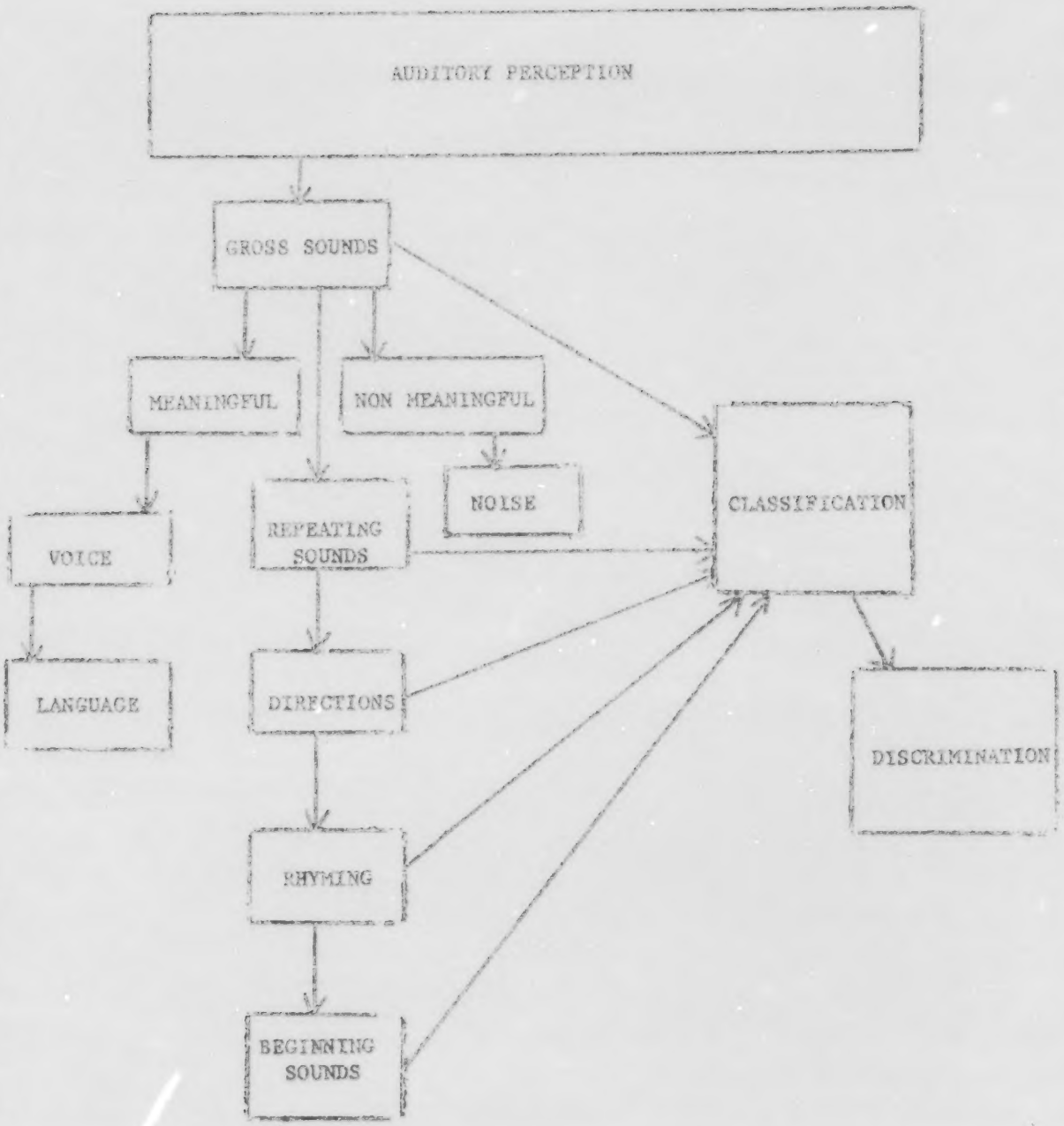
IN

LANGUAGE ARTS

August 1970

Prepared by -

Sue Hollandsworth


AUDITORY PERCEPTION
GROSS SOUNDS
MEANINGFUL
NON MEANINGFUL
VOICE
REPEATING SOUNDS
NOISE
CLASSIFICATION
LANGUAGE
DIRECTIONS
DISCRIMINATION
RHYMING
BEGINNING SOUNDS

The Diagnostic Aid to determine auditory perception should be administered in late September or early October. Before the test is given, the children need to have experiences with: (1) Listening to sounds in the classroom, on records, and on tapes; (2) listening to beats on a drum and answering what the drum says by clapping; (3) following directions from simple to more difficult; (4) listening to nursery rhymes and poems.

Diagnostic Aid to Determine Auditory Perception		
Task	Materials	Procedure
Task 1 Gross sounds	Teacher prepared tape with home, school, community, and farm sounds on it, or records which have home, school, community and farm sounds (Scott Foresman, Sounds Around Us)	Use the teacher prepared tape or the records with sounds on them. Let the child (work with one child at a time) listen to the sound and identify what he hears. Example: home sounds - telephone vacuum cleaner clock ticking and then alarm school sounds - water running door opened and closed block-building, then falling community sounds - fire engine train traffic farm sounds - cow rooster sheep
Task 2 Imitation of the drum or buzzer board	Drum or buzzer board	The child is told to listen to the drum talk and to answer what the drum says by clapping. When using buzzer board, child listens to teacher's pattern of buzzes and then makes the same pattern with his buzzer. Example: beat (or buzz) a. 1-2-3-4 b. 12-34 c. 123-4 d. 123-456

Diagnostic Aid to Determine Auditory Perception (continued)

Task	Materials	Procedure
Task 3 Following directions	None	Teacher and child (1) are together at a table. The teacher says, "I am going to tell you something. I want you to do what I say." Go from one simple direction to several directions. Example: 1. Stand up. 2. Go get a drink and come back. 3. Go to the bookshelf, get a red book and bring it back to me.
Task 4 Rhyming Words 1	Several objects with rhyming names Example: clock-block hat-cat car-jar mouse-house	Teacher and child (1) are seated together at a table. Let the child name all of the objects on the table. Be sure he recognizes all of them. Ask the child if any of the objects on the table sound alike. If he responds "yes," ask him to show you which ones sound alike or rhyme. If he doesn't understand your question, ask him if any one of them rhyme. If the child is unable to accomplish this, do not go on with the Diagnostic Aid. If he has no difficulty, go on to Rhyming Words 2.
Rhyming Words 2	Picture cards of various words that rhyme. Place them in random order on the table.	Have the child name all the cards. Ask him if any of these pictures rhyme. Let him match the ones that he sees rhyme. Encourage him to keep on by saying, "Are there any more?" If he has difficulty, do not go further in the Diagnostic Aid. If he has no difficulty, go on to Rhyming Words 3.
Rhyming Words 3	None	Say to the child, "I am thinking of something that rhymes with fun and it is up in the sky. Can you guess what it is?" Continue, "I am thinking of something that rhymes with hair and you sit on it." "I am thinking of something that rhymes with head and you sleep in it." Next, say "I am going to say two words; if they rhyme, I want you to touch my hand."

Diagnostic Aid to Determine Auditory Perception (continued)

Task	Materials	Procedure
		Example: book-cook fan-flower hog-log fish-dish Next say, "I am going to say three words and I want you to tell me the two that rhyme." You may have to repeat the words more than once so that the child can remember them. Example: down-town-tree house-hit-mitt bee-baby-see jump-bump-jar
Task 5 Initial Sounds 1	Child's name card, several objects, some with the same initial sound as the child's name and others without.	Teacher and child (1) are seated at a table. Let the child name all the objects on the table. Be sure he recognizes all of them. Ask the child if any of the objects on the table have the same beginning sound as his name. If he responds "yes" ask him to hand you those objects. If he doesn't understand, repeat the directions. If the child is unable to accomplish this task, do not go on with the Diagnostic Aid. If he has no difficulty, go on to Initial Sounds 2.
Initial Sounds 2	Various pictures, some with the same initial sound as the child's name and others without.	Have the child name all of the cards. Ask him if any of these pictures have the same beginning sound as found in his name. If he responds "yes" have him hand you those pictures. If he has difficulty, do not go further in the Diagnostic Aid. If he has no difficulty, go on to Initial Sounds 3.
Initial Sounds 3	None	Say to the child, "I am going to say two words; if they begin the same, I want you to touch my hand." Example: book-butterfly cookie-door duck-dog

Diagnostic Aid to Determine Auditory Perception (continued)

Task	Materials	Procedure
		Next say, "I am going to say three words and I want you to tell me the two that begin the same." You may have to repeat the words more than once so that the child can remember them. Example: cake-coffee-butter meat-house-mail pig-paper-tree

Compensatory Activities		
Task	Materials	Procedures
Task 1 Gross sounds Children who are unable to recognize the gross sounds found in Task 1 will need to have many opportunities to work with sounds. There will be several children who have difficulty with this task and they may be grouped together.	Classroom environment	1. Use the classroom environment to help children become aware of sounds. Let the children listen and watch while classroom sounds are being made, e.g., running water, closing door, dropping book, flushing toilet, block building, ringing bell, chair moving, child walking, etc.
	Listening center	2. Use the listening center (teacher directed activity) and let the children listen to records or teacher made tapes of the classroom sounds they have "seen" and heard. Pictures of the sounds should be used. As the child hears and recognizes the sound, he chooses the picture that represents the sound he heard. After the children have listened to all the sounds, discuss, using the pictures, how the sounds are different or alike.
	Pictures	3. Once the children are able to recognize, by using the listening center, the classroom sounds they have seen and heard, move on to other classroom and home sounds. Pictures can be used if needed. 4. The teacher makes an animal sound and the children identify the animal. 5. Let a child pretend he is a certain animal, e.g., a bee. What sound will he make? Let the child decide. Other animals--duck, cat, frog, etc.
	Records and tapes	6. Listen to records and tapes of familiar animal sounds. Use the listening center and pictures. Let the children identify the animals they hear. 7. Fill glasses with different amounts of water. Let the children tap the glasses to hear the changes in sound from glass to glass. Add water to a glass as a child is tapping it to show how more water affects the sound. Note: All children will enjoy and benefit from experiences with sounds. There will be many occasions for working with the entire class with sounds.

Compensatory Activities (continued)		
Task	Materials	Procedures
		a. Help the children become aware of their sense of hearing. When you want the children to listen, tell them that they will need to use their sense of hearing. Later, ask them what they will need to use so that they can listen. b. Open all the windows and the door of the classroom. Explain to the children that they must be very quiet because you want them to listen to the sounds they can hear. Ask, "What will we use to listen?" (Sense of hearing) After they have listened for a minute or two, discuss what they have heard. If the children are enthusiastic about this, let them draw a picture of what they heard. A picture chart could be made of the sounds heard. c. Explain to the children that they are going outside to listen to the sounds on the playground. Ask them what they must use so that they can listen. (Sense of hearing) Take the children outside to a central place on the playground and let them listen to the sounds around them. Go back into the classroom and discuss what they heard. This discussion could lend itself very nicely to taping with the tape recorder. If the teacher uses the tape recorder one-half of the class can be drawing what they heard, under the supervision of an aide, while the other half is with the teacher taping what they heard. The groups are then switched. d. Loud and soft. Discuss with the children which sounds are loud and which are soft. Help them by using the following: What sound will a big bell make? What sound will a baby make? What sound will a big dog make? What sound will a whisper make? What sound will thunder make?

Compensatory Activities (continued)

Task	Materials	Procedures
		e. Clapping game. One child leaves the room. A predetermined object is hidden in the room. When the child returns the group claps loudly or softly to lead the child to the hidden object. f. Use marching music. Children walk with heavy steps when the music is loud and tip toe when the music is soft. g. Children have a great deal of difficulty hearing the difference between high and low. They will need to have many experiences of listening to high and low sounds, e.g., instruments that sound high and low peoples voices piano records with different people singing high and low sounds produced when objects in the room are struck
Task 2 Children who have difficulty imitating a sound after they hear it may need opportunities to imitate sound as they hear it.	Drum	1. The teacher and child are at a table together. Both teacher and child have a drum. Let the child have a few minutes to experiment with beating the drum. Teacher starts to tap a steady beat on the drum. The child is instructed to try and beat his drum as the teacher does (teacher continues to beat her drum). 2. Let the child clap a beat with the teacher. Teacher starts clapping and the child joins in. A variation of this (may need to be done at a later time) would be to let the child start the pattern and the teacher copy the child's beat. 3. Teacher starts a clapping beat and when the child is clapping with her she speeds up or slows down the beat.

Compensatory Activities (continued)

Task	Materials	Procedures
	Pencil	4. Teacher and child at a table together. The teacher starts to tap a steady beat with a pencil. The child is instructed to use his pencil (on table) and try to tap as she does. If the child is unable to do this the teacher should take his hand and help him make the pencil tap correctly. 5. The teacher taps with her finger on the table and instructs the child to use his finger to tap as she does. 6. When the child is able to beat, clap, tap, etc., with the teacher, begin to work with having him listen to your sound and then repeat it. Start very simply and make the task more involved as he becomes ready. a. drum - 1 beat - to more involved beats b. clapping c. finger tapping
	Buzzer board	7. Introduce the buzzer board. Explain to the child that you are going to push the buzzer and that he must listen and then push his buzzer like you pushed yours. Start simply--teacher one buzz--child one buzz. As child has success, make the game more difficult.
	Sound games	Note: All children enjoy clapping and moving to sounds. There will be many opportunities for the entire class to be involved with these kinds of activities, e.g.: a. Teacher uses the drum to beat out a pattern. As the children recognize the pattern they join in clapping. At first the teacher beats the drum one beat at a time. Children join in. Later the children are instructed to listen to the drum talk and then clap with the drum (after they have listened to the beat). The

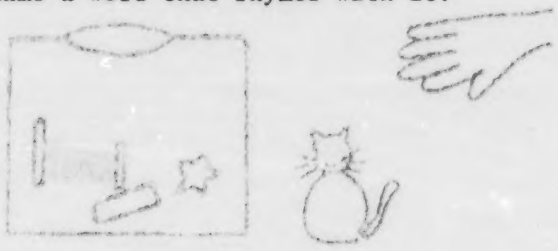
Compensatory Activities (continued)

Task	Materials	Procedures
		teacher beat 123-4, 123-4, keeping up the pattern. The children pick up the pattern and join in. b. Game--Old Mother Hen. There is one hen and five baby chicks. The hen closes her eyes and the babies hide. Mother hen calls, "Cluck, Cluck, where are my babies?" The babies answer, "Peep, Peep." Mother follows the sounds to find her babies. c. Teacher beats the drum fast and slow, letting the children walk or run according to what the drum tells them to do.
Task 3 Children who have difficulty following simple directions need to work closely with the teacher in listening skills. They need to become more aware of the communications of language. Keep in mind the possibility of a hearing defect.	None	1. Talking and listening to the child is very important. Be sure you really listen to what he says. Talk about things of interest to the child and show him that you are interested in what he has to say. Make him aware that you have listened by asking him about what he is discussing or by making remarks about the conversation. Be sure the child's attention is focused on you. 2. Play games that will require the child to listen in order to play, e.g., say, "I am thinking of a word that tells you something you drink out of. Can you guess what it is?" Continue with the same kind of questions. Let the child have a turn asking you to guess. A variation of this game would be to choose an object in the room and let the child try to guess what it is by giving him color clues. 3. Ask the child to tell you words that are loud, big, little, soft, etc. 4. Give clear short directions such as, "Hand me the pencil" (have one on the table). As the child's ability to follow clear short direction increases, have him follow longer directions. Note: All children will need additional work in order to increase their listening

Compensatory Activities (continued)

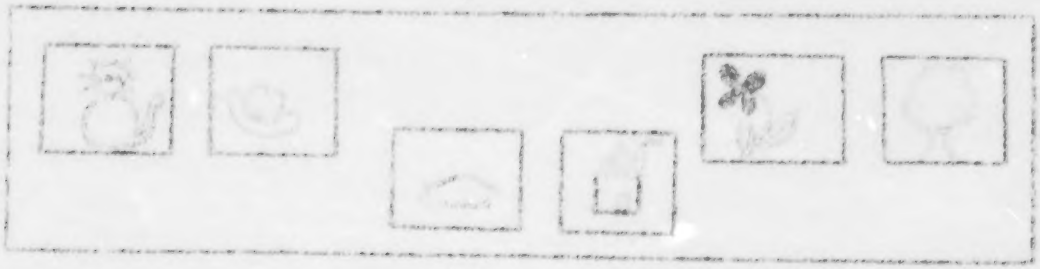
Task	Materials	Procedures
		skills. There should be many opportunities available during the school day to help the child develop and increase his listening skills, e.g.: a. listening to stories b. talking to and listening to the teacher during a conversation c. listening to their friends d. classroom discussions e. music--rhythmic activities, singing f. following directions in teacher directed activities
Task 4 Rhyming Words--using objects Children who have difficulty with rhyming (1) will need many experiences with listening to and saying nursery rhymes and poems. These children may not have become aware of what a rhyming word is or how it sounds. There will be several children on this level and they can be placed in one, two, or several groups depending upon the number.	Nursery rhyme records and books Nursery rhyme pictures Finger plays Poetry	1. Sing and say familiar nursery rhymes. Encourage the child to join in. Use colorful pictures of the nursery rhymes to encourage participation. 2. Act out such nursery rhymes as Little BoPeep, Wee Willie Winkee, Humpty Dumpty, Mary Had a Little Lamb, Little Miss Muffett, Jack and Jill, etc. 3. Call attention to how the nursery rhymes sound alike. Explain to the children that these words are called rhyming words because they sound alike. Discuss what parts of the words sound alike. Discuss with the child how certain words are used because they rhyme, e.g., in Jack and Jill <u>crown</u> is used instead of <u>head</u> because <u>crown</u> rhymes with <u>down</u>. 4. Start a nursery rhyme and let the children fill in the rhyming word. 5. Use finger plays that rhyme. 6. Introduce poetry. Explain to the child that a poem is often a short story that rhymes. Read them many short poems.

Compensatory Activities (continued)

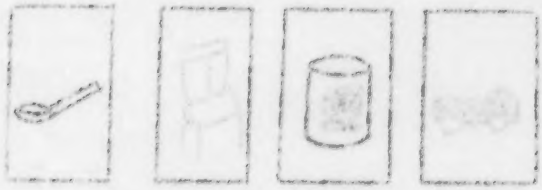
Task	Materials	Procedures
		7. As they become adept, read poems letting the children fill in the rhyming words.
	Objects that rhyme	8. When the children seem to have a realization of what rhyming words are, work with objects that rhyme. Children and teacher are at a table with several objects that rhyme in front of them. Let the children have an opportunity to handle and examine the objects before working with them. Be sure each object is named. Then help the children to find, identify and pair rhyming words.
	Feel box	9. Use a feel box. Have a child reach in the box and choose an object. He is to name what he has drawn out and then name a word that rhymes with it. 
		10. Continue with concrete objects until you are certain the child is able to rhyme.
Rhyming Words (2)--using pictures. Children who have difficulty with Rhyming Words (2) need to continue working with the rhyming cards and rhyming games.	Rhyming cards	1. Use three cards, two that rhyme and one that does not. Let the child name the pictures. Ask him if any of the pictures rhyme. Help him to discover the two pictures that rhyme and put them together. Continue with three different cards.

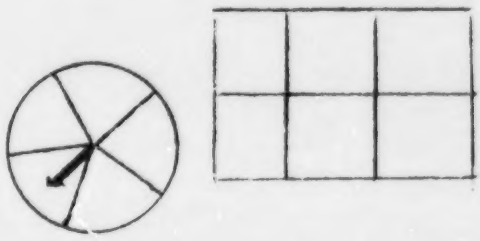
Compensatory Activities (continued)

Task	Materials	Procedures
		2. Put pairs of pictures that rhyme and some that do not on the bulletin board (or on a chart). Let the children choose those sets that rhyme.

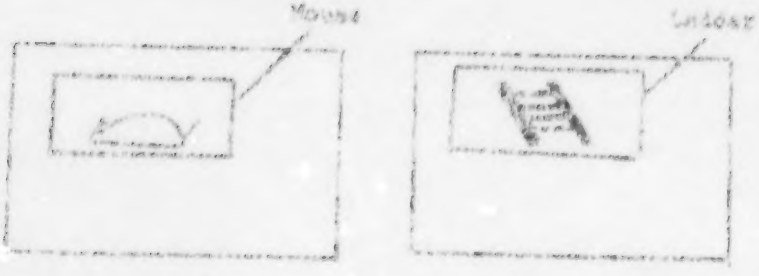


	Rhyming Games	3. Rhyming Lotto: Make a lotto game for rhyming words. Child matches the rhyming card to the proper rhyming picture on this board.

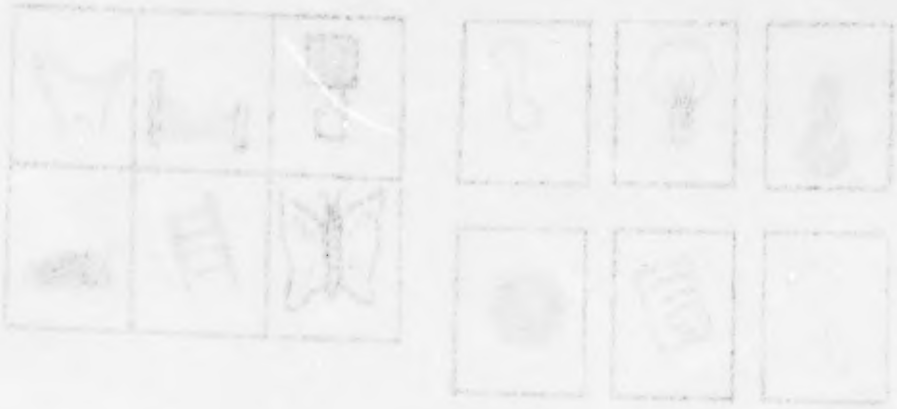


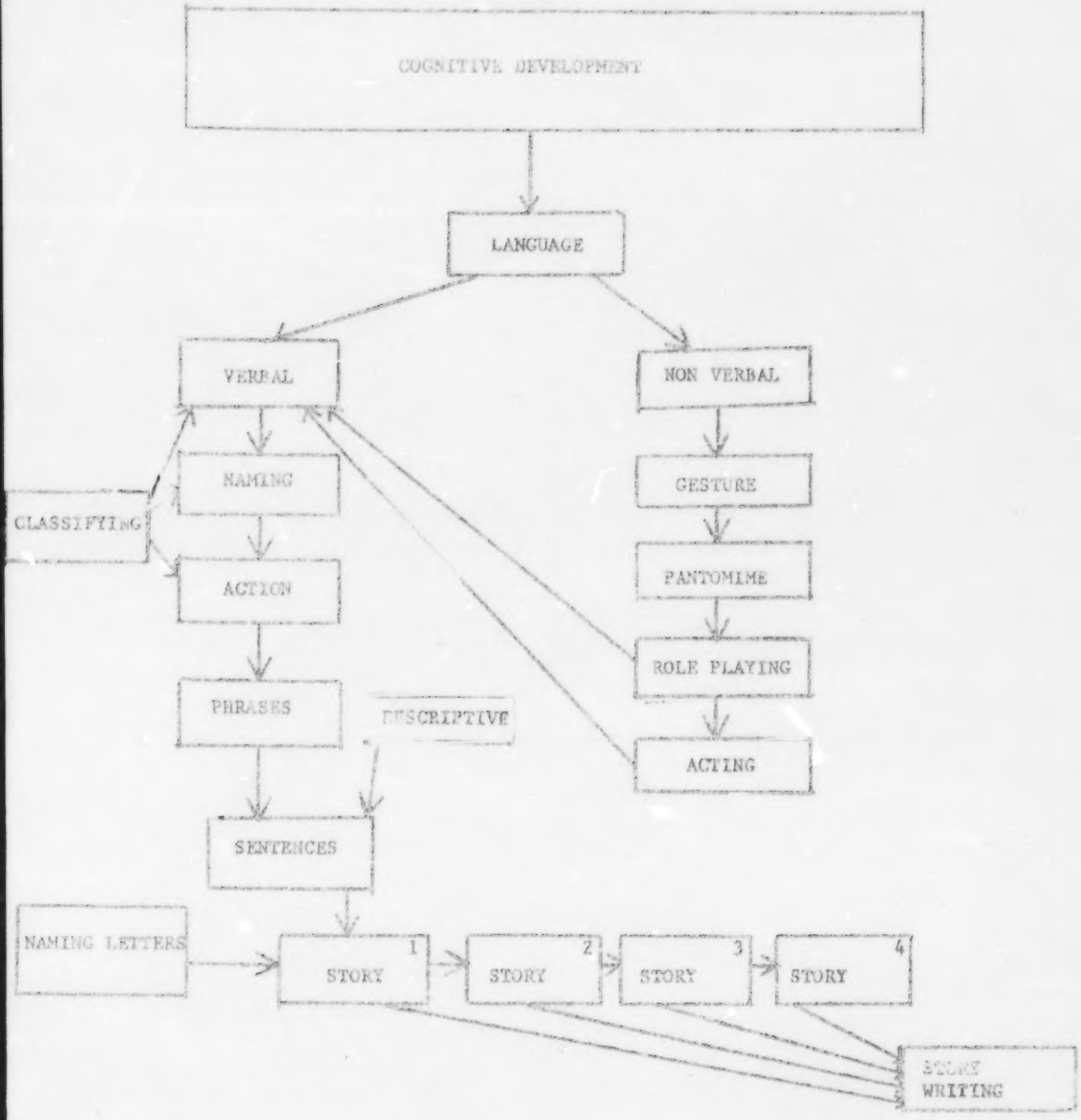
Compensatory Activities (continued)		
Task	Materials	Procedure
		4. Spinner rhyming game--child spins the spinner to a picture, he places a bottle cap on the picture on his board that rhymes with the one on the spinner. 
		5. A variation of the rhyming lotto is to have several lotto boards and one set of rhyming cards. One child is the caller. He holds up a card and names it. The other children check their boards. If they have a picture that rhymes with his card, they cover it with a bottle cap.
	Rhyming Picture	6. Show the child a picture (one that is easy to rhyme with) and ask him to think of a word that rhymes with it.
Task 5 Rhyming Words (3)--no visual clues. Children who have difficulty with Rhyming Words (3) need continued work with listening to sets of words that rhyme. Some may need to go back to activities from Rhyming Words (2).	None	1. Riddles to help children distinguish words of gross similarity, e.g.: Which is an animal, a *cat* or a *hat*? Which is in the sky, a *moon* or a *spoon*? Which is in a bus, a *seat* or a *beet*? Which is in a river, a *fish* or a *dish* 2. Rhyming riddles. "I am thinking of something that rhymes with chair and it is on your head." Continue with the same type of riddles. 3. Sets of words that rhyme and do not rhyme. 4. If the child is unable to rhyme words with no visual clues, he will need to go back to Rhyming (2) where he can have picture clues to help him.

Compensatory Activities (continued)		
Task	Materials	Procedures
Task 6		
Initial Sounds 1, 2, 3	Children's name cards Several small objects that begin like the children's names.	a. Start with the child's name and how it sounds at the beginning. Use the child's name card and an object that starts like his name. Have a small group of children at a table. Place objects starting like their names in the center of the table. Let the children touch, feel, name, and examine the objects before starting the lesson. Put the name tags in a pocket chart. Let the children, one at a time, choose their name and place it on the table in front of them. Each child says his name. After he says his name, attention is called to the sound it makes at the beginning, e.g., lips together, tongue on roof of mouth, teeth together, etc. Everyone says the name. Be sure the children are paying close attention and that they are watching your mouth. After all the children have said their names, call attention to the objects on the table Tell them that we are going to find other things that sound like the beginning of our names. Name an object--say, "I have a bed. I wonder whose name sound like a bed?" If there is no response, encourage them by saying, "Look at my lips. Whose name looked like bed?" The children may need to be told the first few times until they grasp the meaning of the activity. Continue with this type of activity for several sessions.
	Beginning sound pictures	b. After the children are able to recognize objects that begin like their names, move to pictures, (as in Rhyming Words [2]). c. After visual the children move to recognizing *words* that begin like their names (as in Rhyming Words [3]).

Compensatory Activities (continued)		
Task	Materials	Procedures
		d. After the child is familiar with the sound of his name, other sounds can be introduced. *For example*, l, m, b, t. Be sure not to confuse the child by using blends such as tree, brick, etc. Use the same procedure as with his name. Objects first, then visual pictures and then just the words. Introduce the new letters one at a time.
	Feel box	e. Games: 1. Feel Box--place objects that begin with particular sound in the box. Child draws an object from the box and tries to think of a word that starts like the object he drew.
		2. Place pairs of words that begin the same and some that do not on the bulletin board. Let the child find the sets that begin the same.
	Beginning sound trays	3. Have two trays with a picture of a particular sound on each tray, e.g., M and L sound. Have a group of cards with pictures on them that begin with the M and L sound. Child places the card on the proper tray.
		
	Initial sound games	4. Classify pictures that sound alike.

Compensatory Activities (continued)		
Task	Materials	Procedures
		5. Lotto--match beginning sound word card with a picture on the lotto board that begins with the same sound.
		6. Spinner game--child spins the spinner, then places a bottle cap on the picture on the board that begins like the one on the spinner.
		7. A variation of the beginning sound lotto is to have several lotto boards and one set of beginning sound cards. One child is the caller, He holds up a card and names it. The other children check their boards. If they have a picture that begins like the caller's card, he covers it with a bottle cap.




COGNITIVE DEVELOPMENT
LANGUAGE
VERBAL
NON VERBAL
NAMING
CLASSIFYING
ACTION
GESTURE
PANTOMIME
ROLE PLAYING
ACTING
PHRASES
DESCRIPTIVE
SENTENCES
NAMING LETTERS
STORY 1
STORY 2
STORY 3
STORY 4
BOOK WRITING

Verbal expression follows in developmental stages. In dealing with the verbal language of the kindergarten child it is important for the teacher to have a clear understanding of where the child is developmentally. Once the teacher is aware of this she sees in what directions she must progress. When administering the Diagnostic Aid for determining verbal expression the teacher will find various responses among her children. These responses range from a shrug to a very elaborate story. Through the use of this Diagnostic Aid the teacher is able to determine the stages her children are in and can then utilize these activities to help the children progress through the various stages.

Developmental Stages

1 Non-verbal - Child has no language, perhaps a shrug

2 Naming Objects - Child gives a noun response, for example: girl, boy, daddy
Wholeness - Child says, for example: "Supper" - he means more than just one word
Two Words - Child says, for example: "Go home," "See mommy."

3 Putting Action to Noun - Child says, for example: "Children playing"

4 Phrases - Child says, for example: "Hitting the ball." "Washing the car."
Descriptive- For example, "Brown dog;" "Blue car"

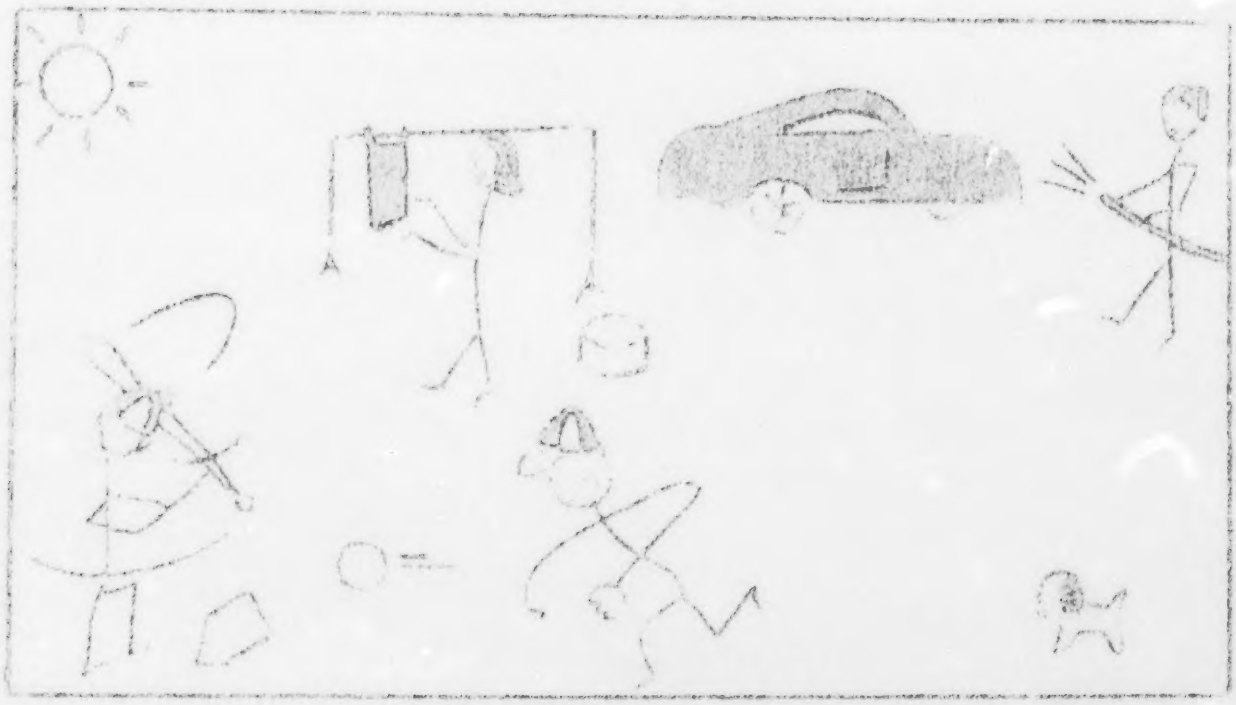
5 Sentences - Child says, for example: "Daddy is washing the car." "The boys are playing ball."

6 Story[1] - Without a plot--Child describes the action of the picture. Example: "The Child playing ball. Mother is taking down clothes. Daddy is washing the car."

7 Story[2] - With plot restricted to the picture: Example: "The family is outside. They are doing different things. The sun is shining."

8 Story[3] - With plot beyond picture: Drawing inferences and conclusions. Emotions. Example: "It is a warm day. It is Saturday. The family is going on a picnic. They are happy. They like picnics."

9 Story[4] - Pure story--going beyond the picture. Once-upon-a-time story. Fantasy. Story has nothing to do with picture, picture used as a jumping off place.



Example of Readiness Picture

Diagnostic Aid to Determine Verbal Expression

Use three different types of pictures when administering the diagnostic task for verbal expression.

1 - Readiness type picture

2 - Picture from a magazine--single subject--open ended either color or black and white.

3 - Print of a well known painting

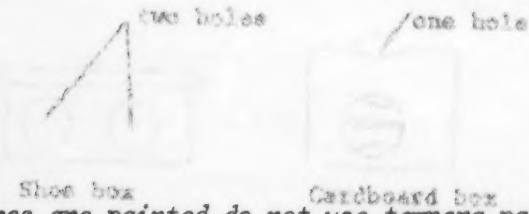
It is necessary to work with children individually. Using a tape recorder gives the advantage of recording verbatim the verbal responses. The children must be familiar with and have had experiences with the tape recorder before it is used for testing. Have the child give his name and age. Ask if he likes stories. Then show each picture, one at a time, saying, "Look at this picture and tell me a story about it."

Diagnostic Aid to Determine Verbal Expression - Picture Interpretation

Stage	Activities and materials to be used by teacher to help develop the child to the next stage
Non-verbal no language shrug	Show the child a familiar object, e.g., a toy dog. Say, "This is a dog. It is not a cat. Dog." "What is this?" "That is right. It is a dog." Show him another familiar animal object, e.g., a cat. Follow the same procedure. Go back and look at the dog and ask, "What is this?" If the child remembers, say, "That is right, it is a dog." If he forgets, tell him, "It is a dog." Repeat with cat. Continue this type of activity for several days until the child is able to tell you the names of several common animals. If the child wants to, a book can then be made of the animals the child knows and perhaps some new ones he may find. Be sure that the book or magazine that he uses has pictures of the animals you have worked with. Encourage him to cut out the picture (he may need help) and to paste the picture in his book. Have him tell you the name of the animal as he places it in his book. If the child finds new animals that he wants to cut out and is unfamiliar with the names, supply him with them. Encourage him to look for different animals. Do not force the child into this activity unless he is interested. Have several pictures of animals on the table. Help the child to classify (by verbalizing) the animals. Pantomime can be useful to the non-verbal child who feels uncomfortable acting out situations. Pantomime becomes a means to an end. As the child becomes comfortable with the process of acting encourage him to verbalize what he is doing. Example: Pantomime first if needed then pure acting with verbalization. Pretend you are a puppy who sees his mother coming down the street. Pretend you are on roller skates and as you go along you hit a bump. Encourage the child to paint and to tell you about his painting. If the child does not respond do not push him to tell you something. He may be at the stage where he is simply experimenting with the paints and may not have painted anything at all. Use the toy telephone as another encouragement for verbalization. Child talking to teacher; child talking to other children.

Stage	Activities and Materials
Non-verbal (cont.)	Puppets can be useful. Sometimes a child who will not verbalize will talk "though" a puppet. Both child and teacher have puppets and the puppets talk to each other about things of interest to the child.
Naming Objects Example: boy, girl mommy (nouns)	Use small objects that the child can manipulate. Example: Doll furniture. Have on the table in front of the child a bed and a doll, a table and chairs Tell the child, "I am going to tell you something. I want you tc make what I say," "Listen carefully and then you make what I say." "The baby is in bed." If he is still unable to construct the sentence, show him. As you make it, say the sentence again--then let him do it. Have the child tell you about what he has made. If he says "baby" encourage him by saying, "Where is the baby?" Using the same procedure, give the sentence, "The baby is sitting at the table." Use the flannel board. Have the child arrange items to show a sentence you have made. Then give him a different set of items and have him arrange them and tell a sentence about what he has made. Let the children work with puppets. At this stage encourage the child to speak in full sentences. Reenact a simple familiar story using puppets. Encourage child to tell you about his paintings. Write what he says directly on his painting. Let the child watch you write what he says. Use a simple picture that is not cluttered. Be sure the character (one) is engaged in a definite activity. Say, "Tell me about the picture." "What alse can you tell me?" "What is the boy doing, etc?"
Putting Action to Noun Example: children playing	Have two children (or a small group of children at this stage) with you at the table. Introduce the feel box. (See next page) Tell them there is something in the box but they are not to look at it. Tell them they are going to use their sense of touch (or feeling) to tell their friends about what they are feeling. Example: "It is round. You play with it. It bounces." Let the other children guess. The one who guesses can then have a turn. Be sure each child has an opportunity to use the box.

Feel Box--cover a box with bright wall paper, shelf paper or contact paper.



If the boxes are painted do not use tempera paint--it will rub off.

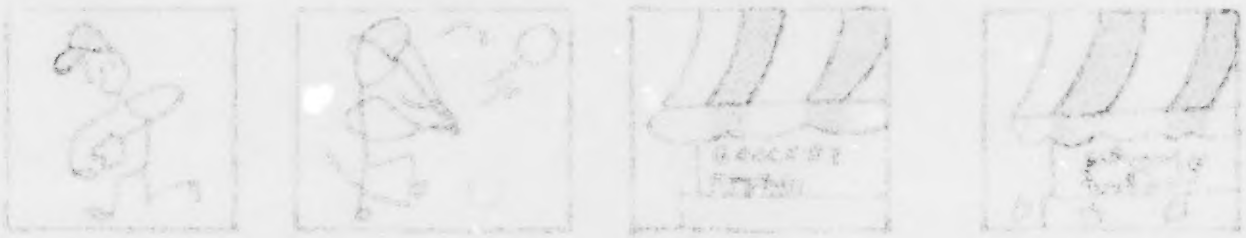
Cut a hole in the box for the child's hand. A cardboard box is best since it will hold larger items.

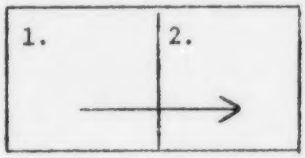
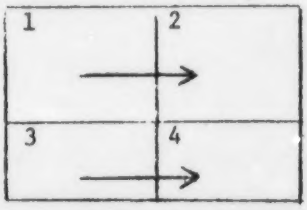
Stage	Activities and Materials
Putting Action to Noun (cont.)	To develop word meaning for words such as: on, behind, in front of, under, up, down, tell the child to: Sit on the chair Stand in front of the chair. Stand behind the chair. Get under the table. Use a flannel board: Have a piece of yarn to represent a telephone wire. Have several birds made of felt. Instruct the child to put the bird: above below on the telephone wire under on top of Have the child place a book: on top of the table under the table beside his chair between two other books

Stage	Activities and Materials
Phrases Example: Washing the car Hitting the ball	Use the feel box. Place various textures in the box. Have the child reach in the box and choose a texture and then describe how it feels. Example: a. It is smooth and it is hard. b. It is soft, it feels like a bunny. Encourage the child to describe how it feels in complete sentences. Use the flannel board. Have cut-outs from a familiar story. Have child create and retell the story. Encourage sentences.
Descriptive Example: brown dog blue car	Use a picture with character or characters engaged in an activity. "Tell me about the picture." If child uses only phrases (washing the car) ask "Who is washing the car?" Use child's picture to encourage sentence building and story telling. Tell child, "I am thinking of something white--ice cream is white." "Can you think of something else that is white?" If the child simply says the word "snow," say, "Yes, snow is white. Can you think of something else?" Use other colors--encourage him to use complete sentences.
Sentences Example: Daddy is washing the car. The boys are playing ball.	Start a familiar story and stop. Let the child finish telling the story. "What a good story you told." Show him a picture. Say, "Tell me a story about this picture." "Tell me more about your story." "What else is happening in your story?" Emotions: Show the child a picture of a happy or a sad person. Ask him how does the person feel. Limit the discussion to feelings shown in the picture (not why).

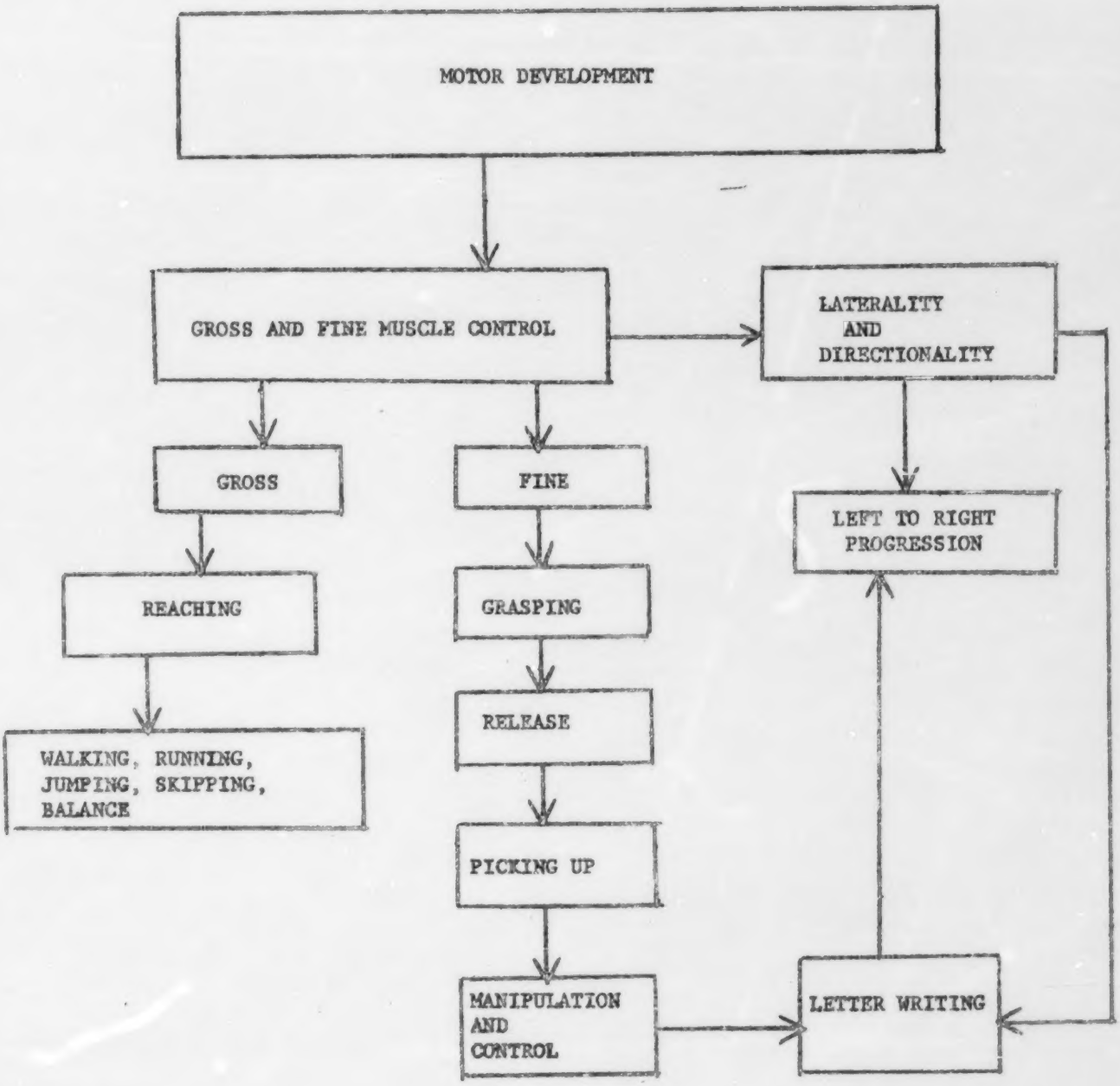
Stage	Activities and Materials
Story 1 Example: Without plot, describing action in the picture The children are playing ball. Mother is taking down clothes. Daddy is washing the car.	*Child riding a bicycle down a sidewalk. A stick is in the pathway. She has her feet on the handle bars.* Show the child a picture. Have him tell you a story about it. Ask questions about the picture to make the child infer and draw conclusions. Be sure the picture lends itself to inferences and conclusions. The action in the picture must be such that the child has only one choice for a conclusion (closed ended.) Example: What is going to happen? Why? What is the girl doing that she shouldn't? Why isn't it safe? Show child picture of child who has just dropped an ice cream cone. Ask the child how the boy (girl) in the picture feels. Why does he feel that way? Grab bag. Have several articles in the grab bag or box. Example. toy car or truck, small toy doll, picture of a house. Have child pick something out and tell a story about it. In a <u>small group situation</u> introduce a picture that lends itself to a story. Be sure that each child has an opportunity to add a sentence to the story. Write the story on chart paper as each child gives his sentence.

Stage	Activities and Materials
Story 2 Example: With plot restricted to the picture. The family is outside. They are doing different things. The sun is shining.	Show the child a picture with definite action. The picture should be one from which the child has an opportunity to draw more than one conclusion (open ended). Ask him to tell you a story about the picture. Encourage him to infer and draw conclusions as to what is going to happen. "We are going to play a game. I'm going to say a word and I want you to tell me what it makes you think of: splash, bang-bang, bow-wow, zoom, mew, ding, etc." Encourage the child to infer what he would do in certain situations. Example: What would you do if you got lost? What would you do if there was a fire? Help children to draw conclusions. Put four or five objects on a table. Let the children examine the objects--then have a child shut his eyes. Remove an object. "What is missing?" If a child has difficulty, reduce number--if no difficulty, increase number and after removing object move other objects on the table so they are not in their original position. Show the child a picture from a magazine. Encourage him to tell you a story about it. As the child dictates the story, the teacher writes exactly what he says.
Activities are the same for Story 3 and Story 4 Story 3 Example: With plot beyond picture, inferences and drawing conclusions.	Show a picture of a broken toy. Ask the child how he would feel if this happened to him. Why? Sequences: Use flannel board. Cut (or draw) four pictures of a story with an obvious sequence. Paste pieces of felt or flannel on back of pictures. Talk about the pictures and have the child tell the story. Then let him arrange the pictures on the flannel board according to sequence. Stress left to right. Make the story one row. Example:



Stage	Activities and Materials
Story 4 Example: Story with a plot. Pure story going beyond the picture - once-upon-a-time story. Fantasy. Story has nothing to do with picture --it is only used as a jumping off place.	Let child look at a chart with two pictures and tell the story going from left to right. Have child show you where you look first, second. Introduce four pictures on a chart and have child tell you where you look. First, (top left), next (top right), next (bottom left) and last (bottom right.)   Introduce the sequence board. First leave pieces on board. Be sure board pieces are in the correct sequence. Talk about the story. Where start, etc. Have child tell story. Be sure he is going from left to right. Take pieces out and let the child try to retell the story by putting the pieces in proper sequence. If he needs help, give it. Always check to make sure he has completed the board correctly. If not, help him to fix it. Let the children dictate stories about pictures they have drawn, colored, and painted. Collect book jackets (you need only the front part of the jacket) and staple them together with manila paper to make a book. The children are then able to choose the book they would like to tell a story about. Let the child dictate his story to you. When he is finished he may illustrate it if he wishes. The book can then be placed on the library shelf or taken home. The book jackets could also be used in a collection of stories from several children. These could be placed in the class library for the childrens' use. Language experience paper (on lined paper) is another media that can be used in story telling. Children should be encouraged to create stories without the necessity of visual stimulus. The children are given a feeling of worth when the teacher reinforces the activity by binding their books.

Stage	Activities and Materials
	Encourage poetry writing---and poetry books. A good beginning is having the entire class write a poem (put it on chart paper). This will help stimulate individual poetry writing. Children should hear a lot of poetry prior to this experience. Some children may show an interest in writing their own stories. The following materials would be appropriate to foster this activity. a. word and picture cards b. dictionary c. easy books d. alphabet cards (displayed at random) e. Judy manuscript letters f. sentence building cards


MOTOR DEVELOPMENT
GROSS AND FINE MUSCLE CONTROL
LATERALITY AND DIRECTIONALITY
GROSS
FINE
LEFT TO RIGHT PROGRESSION
REACHING
GRASPING
RELEASE
WALKING, RUNNING, JUMPING, SKIPPING, BALANCE
PICKING UP
MANIPULATION AND CONTROL
LETTER WRITING

Diagnostic test to determine if coordination is developed sufficiently for writing

The teacher works with one child at a time and administers all three diagnostic tasks to determine amount of coordination. If the child is able to accomplish all three diagnostic tasks he is ready for Task A in writing letters (straight lines)

Task 1

Materials: lined paper and pencil

symbols: 1 - 0

Procedure: The teacher says to the child, "Watch what I am making." "Now I want you to make one like mine." Teacher continues with all three symbols--one at a time.

Task 2

Materials: lined paper and pencil

symbols:

Procedure: Same as for Task 1

Task 3

Materials: lined paper and pencil

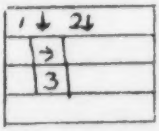
symbols:

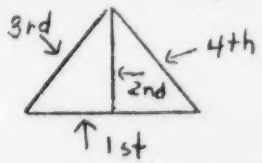
Procedure: Same as for Tasks 1 and 2

Compensatory Activities for Diagnostic Tasks 1 - 3

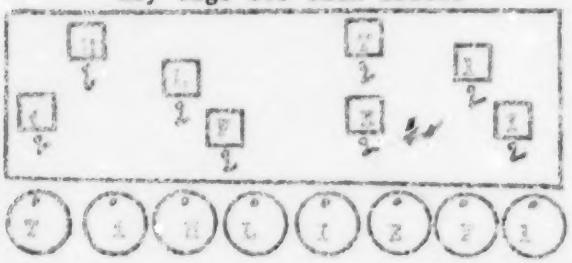
Children who are unable to accomplish these tasks need to engage in many manipulative activities to help develop eye-hand coordination as well as large and small muscle coordination. Examples of such activities are: running, hopping, jumping, climbing, skipping, throwing ball, balancing, clay, finger painting, paints, cutting, pasting, templates, working in sand and at the board and any of the manipulative materials found in the kindergarten room.

Developmental Tasks for Writing the Alphabet

Tasks	Procedures
Task A Writing of straight lined letters H L T I E F i l	Procedure: The teacher says to the child, "I am going to make a letter, I want you to watch me and then I want you to make a letter like my letter." Teacher starts at left and proceeds to make the letter H (do not call it an H). If child names the letter acknowledge his response. Be sure the straight lines are made from the top down. It is important that the child watches while you are making the letter. Call this attention to how you are making it. It is advisable to make two H's before you let the child make his. Help him start in the proper place and watch that he makes the letter correctly. Teacher may need to place a colored dot to show the child where to start and how far down to come. If he shows difficulty, make dotted H (⋮··⋮) for him to trace over. Continue with the same procedure for the remaining letters. No more than two letters should be handled at a time and some children will only be able to accomplish one at a time.  After the child has successfully written the H, introduce the L (do not call them by their names). This could be on the same day or with a less adept child the next day or so. Ask the child (after he has written the L) if this (L) is the same letter he wrote before. If he doesn't remember show him the H. Have him tell you how the letters are different. If he has difficulty help him to see their differences. The child needs to become aware that they are not the same and therefore are different letters. Use this same procedure for each set of similar letters (after they have been written).
Task B Writing counter clockwise letters-right handed children O,Q,C,G,e,c,f,t, a,d,q,u	Procedure: The teacher uses the same procedure for writing counter clockwise letters as for writing straight lined letters (Task A). In writing counter clockwise letters, be sure the child starts at the two o'clock position. Teacher uses the same procedure for distinguishing between similar counter clockwise letters as for distinguishing between similar straight line letters.
Task C Writing clockwise letters B,P,J,D,p,b.h,r, m,n,j	Procedure: Use same procedure as for writing straight lined letters.

Task	Procedure
Task D Writing letters s and g	Procedure: Use same procedure as used in writing straight lined letters.
Task E Writing slanted lined letters: A, K, M, k, N, R, V, W, w, X, x, Y, y, Z, z	Procedure: Use same procedure for writing slanted lined letters as for straight lined letters. If child has difficulty with slanted lines, the introduction of shapes with a base line may help. A rectangle can be turned into a house by adding a triangle. This gives the child security of the base line. Tepee shape is most difficult (May have to give it a floor) Very immature child can be helped by putting a center pole  Child may also be helped by having him close his eyes and told to feel a triangle block sliding his writing hand down one side and then the other. Have him, then immediately transfer this to the chalk board.

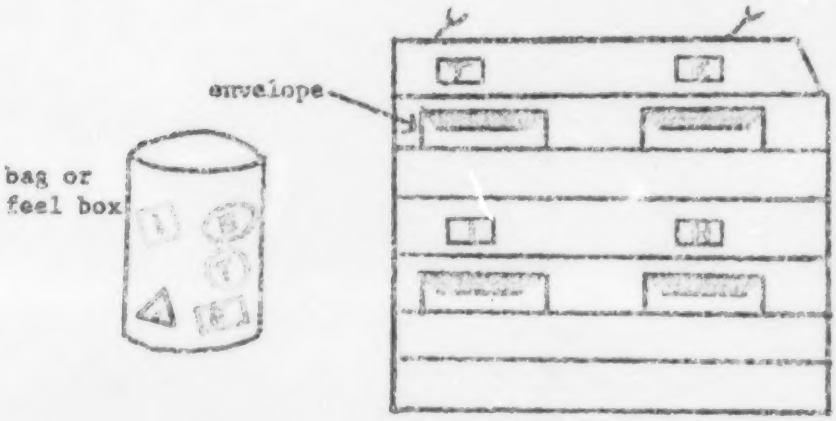
Suggested Activities for Teaching the Letters of the Alphabet

Activity	Materials and Procedures
Activity	Materials: pegboard one card for each letter hooks key tags for each letter  Procedure: Tape the letter cards in a scattered arrangement onto the peg board. Hang a hook directly under each letter. Have the key tags spread out next to or in front of the peg board. Point to one of the letters, name it and ask one of the children to find the key tag with that letter on it. When he finds that letter he hangs it under the one on the peg board and names it. This will become a self-directed activitiy as the children learn the letter names.
Activity	Materials: several cards for each of the straight lined letters Procedure: Have the letters spread out on the table or floor where you are working. Hold up one of the letters and name it. Have a child gather all the cards like your letter and put them in a pile. The teacher should check to make sure his pile is correct. The child names the pile when he has finished. As the children become familiar with the letters alter the procedure by holding up a letterbut not naming it. Let a child name it and then find those like it. This will also become a self-directed activity as the children learn the letter names.
Activity	Materials: letter cards--one set for children, one set for teacher Pocketchart Procedure: Give each child a different letter. Place a duplicate of one of the letters in the pocket chart and name

Activity	Materials and Procedures
	the letter. Ask the child who has the same letter (don't name the child, let him decide) on his card to place it in the chart next to the one there. He names the letter as he places it in the chart. An adaptation of this is to hold up a letter, do not name it and let the child who has that letter name it and put them both in the pocket chart.
Spinner Game	Materials: 1 spinner bottle caps several game cards Procedure: Each child has his own game card. The child spins the spinner and lets it point to a letter. He then finds that letter on his card. Before he can cover it with a bottle cap he must name the letter correctly. If he is unable to name the letter he cannot cover it and the next child takes his turn. This should be teacher directed at first but later can become self-directed. If the child spins to a letter he has already covered he looses his turn.

Activity	Materials and Procedures
Letter Lotto	Materials: set of letter cards several game cards bottle caps Procedure: At first this activity is teacher directed, later it may become self-directed. The teacher is the caller. She holds up one of the letter cards and names it. The children check their boards, if they have that letter they name it and place a bottle cap over the letter. The child who finishes first is the winner and he becomes the caller. Teacher watches (or plays) and makes sure the caller names the letters correctly. Let other children help caller with the correct letter names.

Activity	Materials and Procedures
Activity	Materials: paper bag or feel box many shapes and figures with letters attached to them. Several for each letter pocket chart envelopes 1 card for each letter Procedure: Child reaches in bag (or feel fox) and pulls out a shape or figure. He matches the letter on the shape with the letter attached to the pocket chart. The child must then name the letter. If he is correct, he puts his shape in the envelope under the same letter on the pocket chart. If he is not correct he puts his shape back in the bag (or feel box).



Pocket chart

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MATHEMATICS

FOR

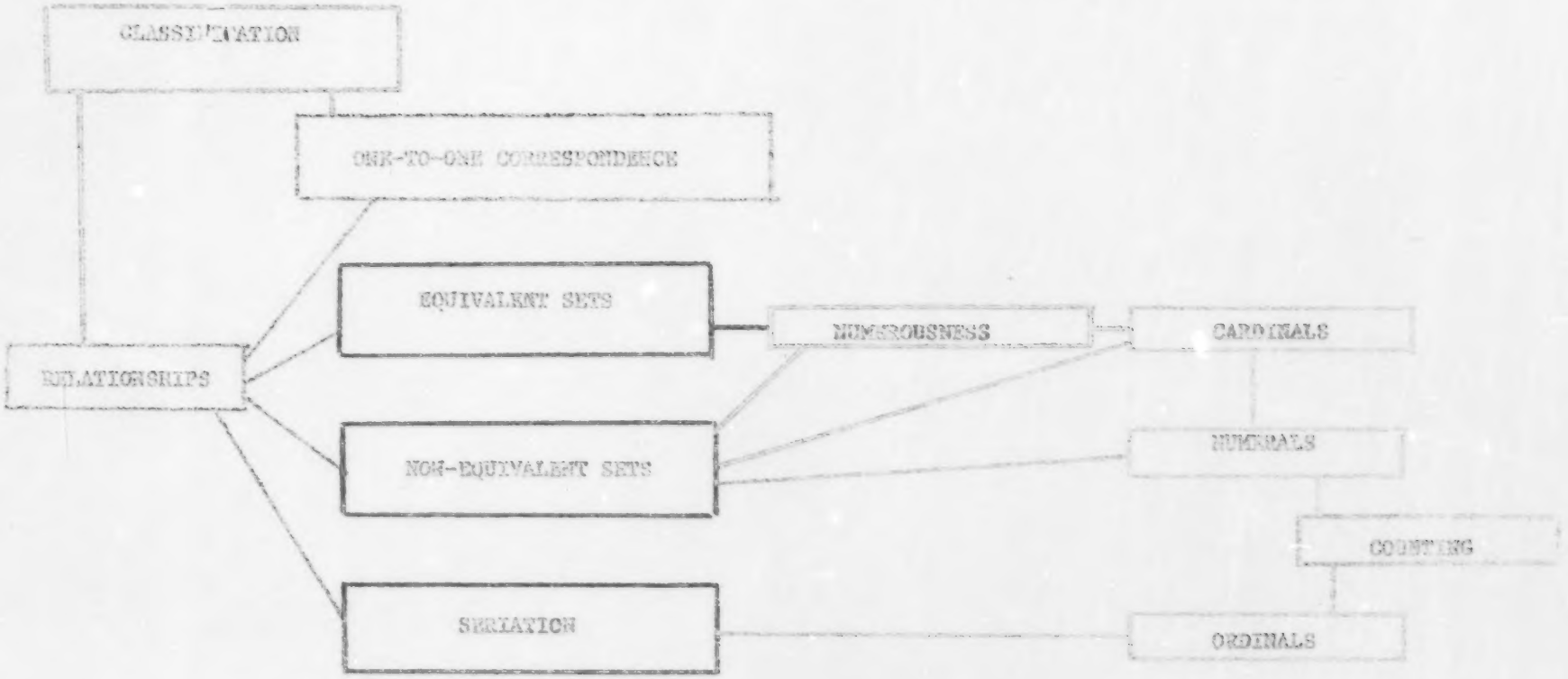
FIVE-YEAR-OLDS

August 1970

Prepared by -

Joyce Moore

CONSERVATION



One-to-One Correspondence

One-to-one correspondence is a basic concept for the understanding of number. It provides the simplest and most direct measurement of the equivalence of two sets.

The idea of one-to-one correspondence is used when the members of one set of objects can be paired, or matched one by one, with the members of another set in such a way that each member of one set is paired with a member of the second set and each member of the second set is paired with a member of the first set.

When sets or groups can be put in one-to-one correspondence, they are alike in number, no matter how different they may be in other respects. From this concept the child will gain the understanding of number constancy, which leads into conceptual awareness of number conservation.

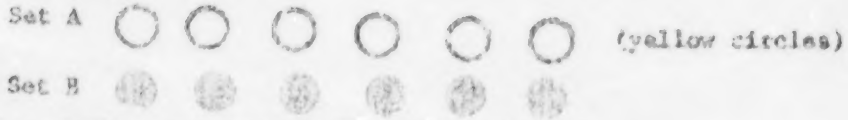
There are several levels of difficulty involved in the various sub-categories of one-to-one correspondence.

DIAGNOSTIC TASKS

Task #1

Matching two equal sets when the elements of one set are of a <u>different color</u> from the elements of the other set.

Example:



Materials: one set of six yellow circles
one set of six blue circles
(circles must be the same size)

Procedure: Teacher has both sets of circles on the table in separate piles. She says,* "Watch carefully what I do." She then slowly places the six yellow circles in a straight line in the middle of the table. Teacher then says, "Look at the row of yellow circles. Put a blue circle next to every yellow circle so that there is a blue circle for every yellow circle."

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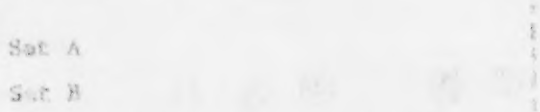
*The language is very important. Changing directions may confuse the child or lead him into making responses not necessarily his own.

Interpretation of Task #1 and Compensatory Activities

There will be children who cannot perform this task. They may attack the problem through global comparisons:

Example:



These children will be concerned with the *length* of the two sets, not with the individual elements. The actual one-to-one relationship is not accomplished. They may begin matching exactly, but not carry it throughout the task.

Activities at this level will involve the actual physical act of putting objects into or on other objects. These children should be instructed on an individual basis.

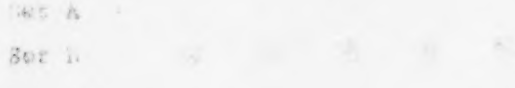
The classroom's physical environment will allow for many simple activities of this sort. The child should work with familiar materials that naturally go together. (Cups and saucers, cookies and napkins, paint jars and brushes, paper and pencil, etc.)

Begin with fewer objects in sets and add more as child's ability increases. The same procedure should be used in these activities as is described in task #1.

Task #2

Matching two equal sets when the elements of one set *differ* from the elements of the second set in *color and size.*

Example:



Materials: one set of six large yellow circles
one set of six small blue circles

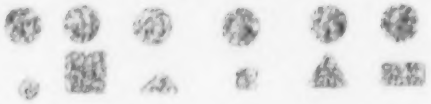
Procedure: Same as given in Task #1.

Interpretation of Task #2 and Compensatory Activities

The difference in size in these materials may cause some children to have problems. If this task is not accomplished by the child, then he needs to return to activities of the task #1 type. These would involve much practice with the same sized materials at first, then move slowly to materials where different sizes are used. Beginning activities would necessitate fewer objects.

Task #3

Matching two equal sets of objects when the *elements of the first set are of the same size and shape,* while the *elements of the second set are mixed with respect to size and shape.* Objects are of the *same color.*

Example: 

Procedure: Directions are altered slightly from Task #1. "You take objects from your pile and put one object next to each of my circles that there is one of your objects for everyone of my circles."

Interpretation of Task #3 and Compensatory Activities

The absence of contrasting color makes this an even more difficult task. Activities to meet this task would include materials as described, except that practice with objects of contrasting color would be appropriate at the beginning. Use of fewer objects of the same color would follow next.

Task #4

Matching two sets of mixed objects, *both sets mixed with respect to size, shape and color.*

Example: Set A - one set of any seven objects (all objects must differ)

Set B - one set of any seven objects (all objects must differ)
(No object in this set should be such that it would naturally correspond with any in set A. [truck, car; cup, saucer])

Procedure: Teacher: "Watch carefully what I do." (places 7 objects on table in a row) "You put an object next to each one of mine, so that there is one of your objects for each one of my objects."

Interpretation and Compensatory Activities

Failure to accomplish this task would necessitate returning to tasks similar to Task #3. Using fewer in number for task #4 would be the next step toward Task #4.

Numerousness of Sets

Once a child has the ability to place equivalent sets in one-to-one correspondence, the sets may then be labelled as to their numerousness.

The same number word, example: "three" is associated with any groups that can be matched or put into one-to-one correspondence with the group, example: 000. Other groups that match this one may be made up of blocks, jacks, children, etc. but no matter what their physical characteristics, the numerousness of each group may be expressed by the word "three."

A number label should be treated in the same manner as, for instance, "red." In order to firmly establish "redness," the child must be exposed to many instances of red. Therefore, the label "three" must be given to many and varied instances of three.

Using examples from the wide variety of materials within the room, the child should label "three" any instances of three, no matter what it's physical composition.

There is no necessity in beginning with "one" and working up through the numbers in order. Young children will be at an advantage if you begin with four or five. The number sets of one through five should be worked with in an intensive manner. These are the basic groupings that are needed in determining the numerousness of larger sets without the necessity of counting.

Diagnostic Tasks For Numerousness of Sets

Task #1 - Recognizing a set of *three*

Materials: sets of three that are made up of a variety of objects found in the classroom

Example:

3 books	3 blocks
3 chairs	3 beads
3 children	3 tables

Directions: Teacher should place these objects in child's view and question, "How many _____ do you see?" Use several of the examples.

With smaller samples that can be used on the table, place several groups of differing number size on the table and ask the child to show you "which is three."

Place a row of 8-10 objects on the table and ask child to hand you, "two, one, three."

Have child draw objects in groups of threes, such as 3 balls, 3 houses, 3 suns.

Compensatory Activities for Task #1

A child who cannot give the label three to these sets, needs more practice with developing the concept of "threeness." Examples of activities to aid in the acquirement of this concept would be:

(A) Prepared boxes which contain at least three sets of three objects. There should not be a surplus (say 4) of any object. Objects should be familiar, and in contrasting shape and color. Example: 3 blocks, 3 jacks, 3 pencils would be in one box as one instance of "threeness."

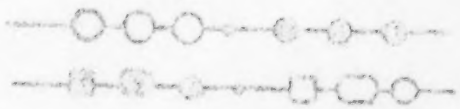
Teacher directed for the first few times:

Child will remove them from the box and place on the table where he can see them all plainly. Then he will choose one set to begin with--place them in a row and proceed to line the next set up below that, etc. When finished, he should be able to say they are all of the same quantity, and label them as instances of "three." This may be accomplished through his counting 1-2-3. *He must understand when counting a group of objects, the last number he says, is the name of the number of the set.*

(B) Beads

Child would be directed to string beads in groups of three. Each group would be of a different color, and if possible, different shapes. A small knot can be tied between each grouping to keep them separate, if this is felt necessary.

Example:



(C) Blocks

Child is directed to place blocks of each shape in piles of three. If he likes, he may create separate structures of threes.

(D) Clay

Child creates groups of threes through the medium of clay. Beginning with a group of three different shapes, and then groups of shapes the same.

(E) Finding three

Teacher directs child to find objects in the room. "Find three chairs, three tables, etc."

Diagnostic Task #2

Recognizing Sets through Five

Materials and directions are the same as in Task #1, only the various groups of 1-5 are used. Continue to use familiar objects, and go through each step of the diagnosis:

(1) How many _____ do you see?

(2) Which set shows _____?

(3) Hand me _____.

Compensatory Activities for Task #2

(a) Boxes

Use prepared boxes mentioned in Activities for Task #1, adding boxes for all sets 1-5. The teacher may need to direct this activity at the beginning.

(B) Beads

Use the various groupings starting with groupings of the same number and going on to groupings of mixed numbers.

(C) Blocks

Same as in Activity #1, but working with varying group sizes. Block structures will be of more complexity due to the addition of blocks.

(D) Directions

Having child bring to teacher, requested groups of objects:

"Bring me 4 books."
"Bring me 2 chairs."
"Bring me 5 crayons."

(E) Spinner games

Make several tagboard cards with groupings of 1-5 on each card.

Example:

Spinner will have groupings with circles only.

Directions:

Small group plays at same time. Spinner is turned and lands on a grouping. Child matches grouping with those on his card. If he has such a group, he places bottle cap on card.

(F) Naming Sets

Materials: two equivalent sets of objects in constrasting shape and color.

Directions:

Teacher: (places 4 objects on table) "Watch carefully what I am doing." (Hands child a box with one other group of objects). "Put those on the table next to mine, so that there is one of yours for each one of mine." (after this is done, ask) "Are they the same?" "How many are in my set?" "How many are in your set?" "Both sets have ___ "

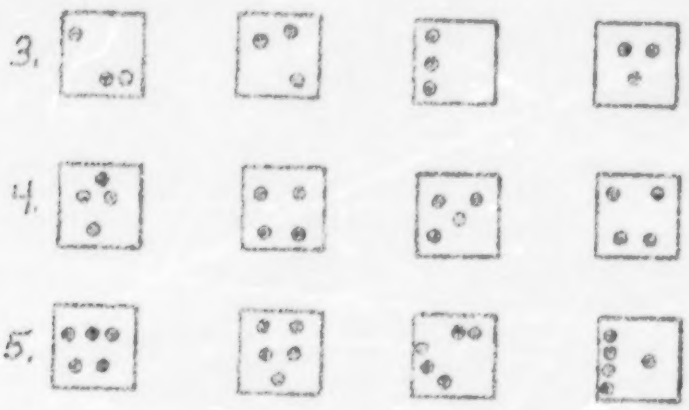
Vary this activity by using sets of different numbers.

Diagnostic Task #3

Recognizing sets with sets

Materials: (a) a variety of objects within the classroom
(b) a set of cards of various set patterns

Card Examples:



Directions:

Through the use of materials in room (blocks, chairs, etc.) discuss with the child the various sets within sets. (a set of 5 chairs is made up of 2 chairs and 3 chairs; or 2 chairs, and 2 chairs, and 1 chair, etc.)

Place cards on table and one at a time (mix sequence) and have them label the set. Then have them tell you the subsets they see.

Compensatory Activities For Task #3

(A) Seeing Subsets

Materials: round of discs (or bottle caps)
pieces of yarn

Directions: Teacher places yarn piece in front of child and one in front of herself. She then explains the bottle caps are like leaves growing on a stem. Places 2 caps on either side of yarn.

Example:

Has child do the same on his yarn. Teacher then asks child how many leaves do you see? How many are on each side? Can you put the leaves on the stem in another way? Teacher may have to demonstrate)

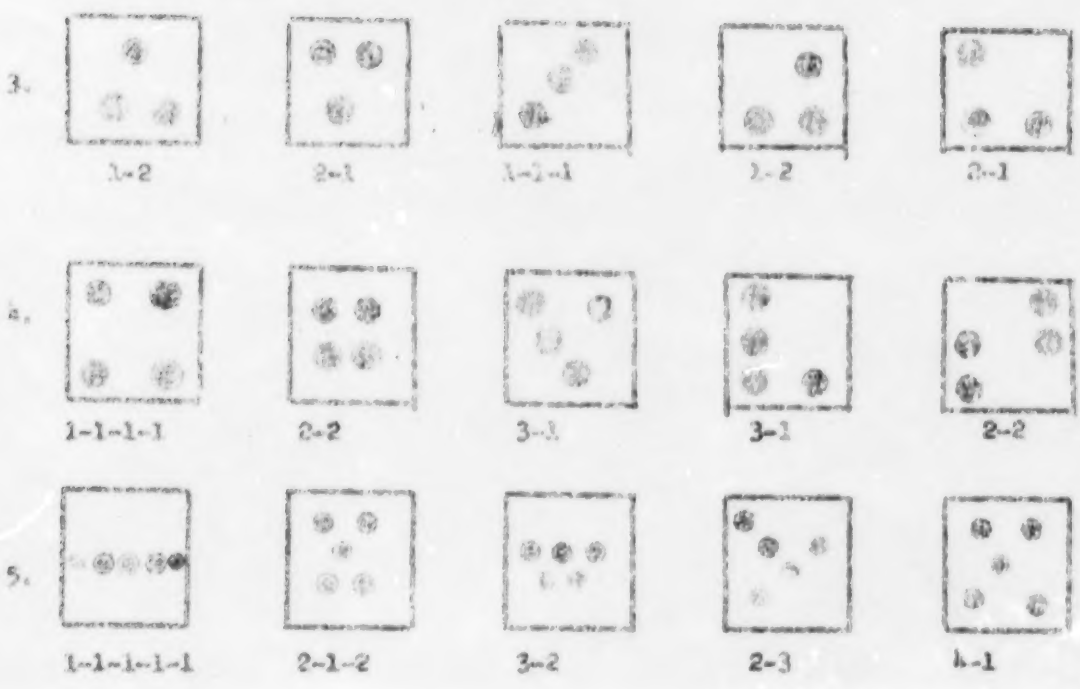
Example:

Use varying numbers of leaves as child becomes more familiar with this activity.

(B) Seeing sets within sets

Materials: cards similar to those used in Diagnostic Task #3. These cards must emphasize the subsets. Use of color in the subsets may help the emphasis.

Examples:



NUMERAL RECOGNITION

After the numerousness of the sets of one through five are *well established* by the child, the numerals may then be exhibited and associated with the correct sets.

There will be kindergarten children who already recognize these numerals, and can match them with the correct sets. If this is carefully checked by the teacher, then she will not need to work with these children on these particular numerals, and may choose to then go on to the higher ones.

The following diagnostic task should be given to *every* child to determine his proficiency in this area. If he does not recognize all the numerals 1-5 then he must engage in compensatory activities such as suggested.

There are many various activities that can be used as reinforcement to the identification of the symbols. At this time, there is no need for the children to learn to write them. However, if the child does so on his own, or has asked for aid in this area, the teacher should provide for this type of activity.

DIAGNOSTIC TASK FOR NUMERAL RECOGNITION (1-5)

Step A - Flash Cards

Materials: 5 cards with the numerals printed on them

Directions: Teacher should show child one card at a time (in no set order), asking the child to give the number label.

Step B - Choosing Correct Number

Materials: 3 sets of same cards used in Step A

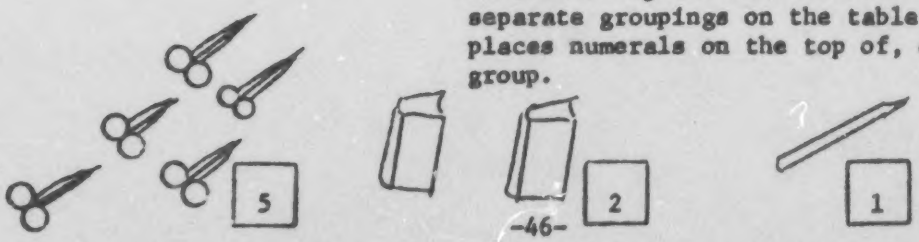
Directions: Teacher places all three sets randomly on the table. Asks child to point to the ones that say, "3, 5, 4, 1, 2."

Step C - Matching Numeral with Set

Materials: 1 set of numeral cards used in Step A
a box of sets of objects in groups of 1-5

Example: 1 pencil
2 books
3 blocks
4 crayons
5 scissors

Directions: Teacher places cards on table and show the child the groups of objects in a box. Child is to remove objects from box and arrange in separate groupings on the table. Then he places numerals on the top of, or below each group.



COMPENSATORY ACTIVITIES FOR NUMERAL RECOGNITION

Having worked with the plastic containers of various sets, it follows that these containers will be the vehicle for the beginning work with the numerical symbols.

Children will identify the numerousness of the sets within the box first and then the teacher will explain that she is going to write the numeral on the card. Taking one container at a time, in random order, the teacher will write the numeral on a card and attach to the lid of the container. "This box has sets that have four things in them. I will write the numeral 4."

The container will be available in the room, and each time they are used, the label will be evident to the child, and he will begin to associate it with the quantities within the boxes.

Reinforcement Activities *(Each activity can be limited to fewer numerals at first)*

(a) How Many?

Materials: 1 set of numeral cards 1-5
objects in room

Directions: Teacher holds up card and asks child to bring that many objects to her.

(b) Individual Boxes

Materials: several plastic containers that have sets of objects up through five and small cards with numerals through five

Directions: Child empties box and puts objects in separate sets. He then places the correct numeral to each set. Two children can do this as a joint effort--one checking the other.

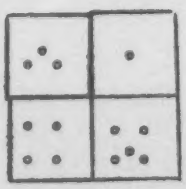
(c) Clothesline

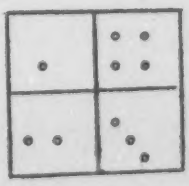
Materials: set of numeral cards 1-5
piece of string
5 pattern cards 1-5
paper clips

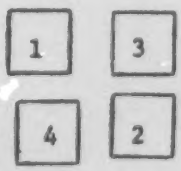
Directions: Teacher puts up clothesline between two chairs. One child hangs up the pattern cards. Then numeral cards are paired with pattern cards, by either replacing pattern with numeral, or clipping numeral over pattern.

(d) Lotto Game

Materials: large cards with pattern sets 1-5
small cards with numerals 1-5







Directions: Small numeral cards are placed face side down in center of playing area. Each child has own large patterned card. One at a time, teacher chooses card from center and asks child (beginning to her right) if he has that pattern. He must identify the numeral before placing it over his pattern. If he has that one already covered, then go on to the next child. If he does not have that pattern, the next child has a turn.

(e) Spinner Game

Materials: Spinner with numerals 1-5
pattern cards such as used in Lotto Game
bottle caps

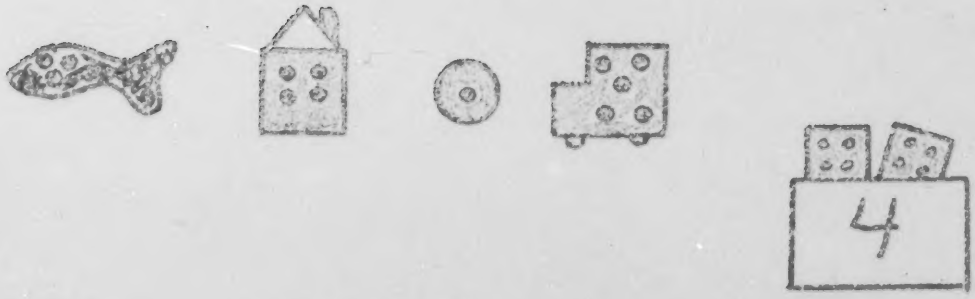
Directions: Child spins and checks the number against his pattern board. If he has the matching pattern, he places bottle cap over it. (This pattern board can be enlarged to hold several duplications of the same number quantity).

(f) Object Game

Materials: Cut-out objects of different shapes and colors
each one has a pattern
large paper bag
Pocket chart or envelopes marked with numerals 1-5

Directions: Child reaches in bag and pulls out object. He matches object patterns with numeral on pocket chart and inserts it.

Example:



(g) Draw How Many

Materials: crayons
paper
set of numeral cards 1-5

Directions: Teacher holds up numeral card and child draws a group depicting that amount

(h) Flannel Board

Materials: flannel boards
flannel cut-outs
flannel numbers

Directions: Child matches flannel figures with numbers. One child may make the set and another match the numbers and then take turns.

(i) Tapping Out Numbers

Materials: set of numeral cards 1-5

Directions: Teacher taps on table, and child chooses the numeral that matches.

(j) Flash Card Match

Materials: set of numeral cards 1-5
set of pattern cards 1-5

Directions: Child matches one type of card with the other. Two children could work together.

NON-EQUIVALENT SETS

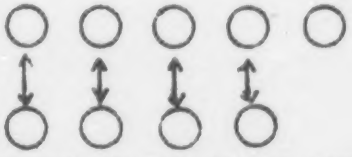
When two non-equivalent sets are put into one-to-one correspondence, the child should see that there are more objects in one row than in the other. Young children tend to use the word "more" in instances of this sort, as opposed to "less" or "few." When working with non-equivalent sets, the vocabulary is quite important.

- more	- less	- many	- few
- same as	- one more than		
- one less than			

These words are not easy for young children to cope with, therefore, the teacher must really put concentrated effort in this area.

Many learnings stem from non-equivalent sets.

Example:



Putting these sets in one-to-one correspondence, the child may say, "There's more there." (meaning the top row). He must be helped to see that in order to make the 1-1 correspondence equivalent, he must add "one more" to the bottom row, or take one away from the top row.

He sees he has a set of 5 and a set of 4. He can *see* that 5 is more than 4, and 4 is less than 5. He will *need to understand that 5 is one more than 4 and 4 is one less than 5.* If he adds 1 to the set of 4 he will have two sets of 5. If he removes 1 from the set of five, he will have 2 sets of 4.

Non-equivalent sets should be introduced with the addition or subtraction of *just one object of one set.* Larger instances of non-equivalency should come *much* later.

The young child will not acquire these learnings automatically, and will need to discover them through many instances of manipulating materials of this type in *this particular* fashion.

The ability to work with non-equivalent sets will be basic towards putting numbers in order, learning the ordinals, addition and subtraction.

Introducing non-equivalent sets follows the same order as that of one-to-one correspondence. That is, sets begin with objects of same size and different colors and progress upward, to the more complex sets of mixed qualities.

DIAGNOSTIC TASKS FOR NON-EQUIVALENT SETS

TASK #1 - *SEES* NON-EQUIVALENCY

Materials: 6 large yellow circles
5 large blue circles

Directions: T: "Watch carefully what I do." (places yellow circles in line on table) "Take your blue circles and put them next to the yellow ones, so that there is one blue one for every yellow one.

C: (puts blue ones in row)

T: (watch carefully what child does--note reaction to the non-equivalency. Listen carefully to any statement the child may make.)

T: "Tell me about the sets--what do you see?"

Interpretation of Task #1 and Compensatory Activities

The children will fall into three groups:

I. There may be children who do not see that the sets are non-equivalent. If this is the case, these children will need to work with materials mentioned in Task #1 of 1-1 correspondence, such as placing cups in saucers, cookies on napkins, etc.

As they accomplish this task and say that there is more of one than the other, they should be taken through the progressive steps as used in 1-1 correspondence (still using non-equivalent sets) up to the mixed qualities. After that they can be re-checked on Task #1 in non-equivalency and continue on into the activities in that row.

II. The next group of children will be those that see non-equivalency on Task #1 but verbalization is limited.

Example: Child: "You've got more than me."
"I don't have as many as you."

They are not yet verbally dealing with the numerical value of the sets. The teacher will need to plan activities and organize materials for these children so that they not only see differences but can verbalize what they see. The concept of "one more" and "one less" should evolve through the use of particular materials (mainly self-directed), and teacher-directed activities. At this stage the teacher will inquire again into the child's activities with questions of "Tell me about the sets," or "What can you say about what you see?" Again, avoiding questions like "How many more or less."

Compensatory Activities for Group II

A. Main emphasis will be working with materials in non-equivalent sets. Plastic boxes such as used in the 1-1 correspondence and numerousness activities will be set up with non-equivalent sets. A box will contain just two sets.

Example: boxes containing a set of 5 and a set of 4
boxes containing a set of 4 and a set of 3
boxes containing a set of 3 and a set of 2
boxes containing a set of 2 and a set of 1

Included in these boxes will be small numeral cards with the numeral of those two sets. They will be used to label the two sets. Not only will the child be dealing with concrete "threeness" but with the abstract label of "3."

Children will use these materials in the same manner as before with equivalent sets on their own after initial directions from the teacher.

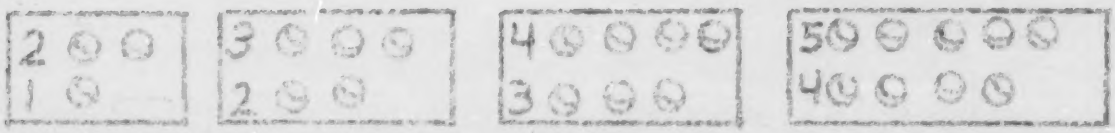
B. Blocks

Children build structures using two non-equivalent sets with only one block difference. He builds a structure with 3 blocks, for example, and another structure with 4 blocks. Discuss the differences and how they could be made the same. If he had one more block to add to the 3 block structure he could make the 4 block structure. If he took away one block from the four block structure he could value the three block structure.

C. Graphic Non-Equivalence

With direction from teacher, child or small group of children, make charts showing the difference between two numbers in a series.

Examples:



III. This group of children will give clearer verbal responses to Task #1.

Examples: "You have 6 and I only have 5."
"You have 1 more than me."
"I need another one to have the same as you."

The next step with these children is to gain an understanding of quantitative ordering.

COUNTING

Counting is one of the first and natural number activities in which children engage. Most come to school with counting experiences. Learning to repeat numerals in proper order takes much practice for a young child. This ability, is, of course, no indication that the child understands the number system, or that he can identify the number of objects in a group, or use numbers functionally in any other way.

Children naturally delight in counting and teachers must be constantly alert to the many varied opportunities that arise in the kindergarten environment. A child is able to say numbers in correct order before he can say them while pointing to objects,

In order to count a set of things, the child must take each item in turn and pair it with a numeral in proper sequence.

Three skills underlie this ability:

(1) Knowing the names of the numerals in correct order.

(2) Ability to point to or look at each object in the set one at a time until all have been taken in exactly once.

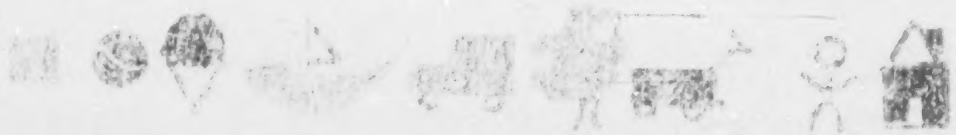
(3) Ability to coordinate the first two skills, to bring the numerals in a 1-1 correspondence with the objects in the set.

Once the child understands the notion of touching each thing only once, the difficulty of the task lies in the keeping track of where he has been.

Mary C. Potter and Ellen Levy[1] found in their research that sets of objects to be counted affects his ability to count.

The following is a description of sets showing the progressive difficulty in enumeration:

(1) a long straight line is easiest if the objects are not alike:



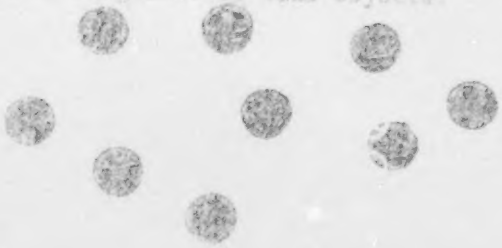
(2) a long straight line of objects that are the same:

(3) an orderly series of differing objects:

(4) an orderly pattern of like objects

(5) Random arrangement of differing objects:

(6) Random arrangement of like objects:



The young child relies on features of individual items to distinguish old ones from new ones. This does not work well for him when there are too few or too many distinctive cues and when there are many items in the set.

The ability to hold in mind a set of items that one has counted shows an increase with age.

Children tend to start in the lower corner of the sets, depending on which hand they use to count with. Older children tend to start in the upper left hand corner.

Most researchers have found that generally, five year olds can count rote to 13, and rational count to 10.

DIAGNOSTIC TASK

Task #1 Materials: 10 objects from room
Example: block, pencil, bead, crayon, cup, straw, napkin, ball, clay, book, box

Directions: Place these objects on table in a straight row. Ask child to count them. If child counts without pointing and gets confused show him to start again pointing to each object as he counts.

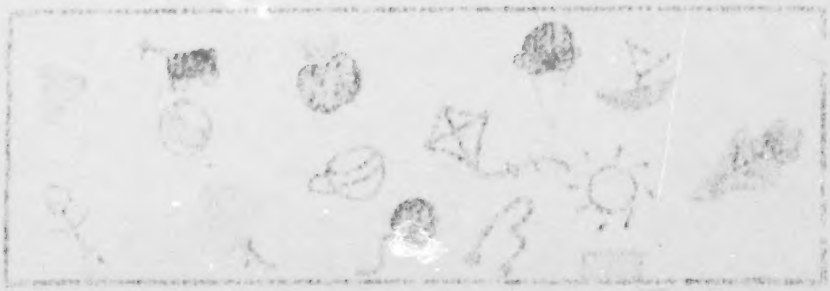
Task #2 Materials: Card on which is drawn 10 objects of same color, shape and size in organized pattern.

Example:

Directions: Place card in front of child and ask him to count the circles. Again remind child to point to each if he gets confused.

Task #3 Materials: 15 objects varying in size, shape and color drawn randomly on a large card.

Example:-



Directions: Same as in previous tasks.

Compensatory Activities for Task #1

Children who have difficulty counting familiar objects will need numerous activities and everyday opportunities for practice. Learning to rote count is necessary before rational counting, and their problem may fall in this area. Before they can count 5 objects they must be able to count to five in the right order. Some children will need to learn to count to five. Others will have mastered five, but not counting to 10.

After rote counting to 5 or 10 is learned, opportunities to count objects to these numbers comes next. They will need to touch each object as they say the numbers, so they see the one-to-one correspondence of object and number.

Activity A Materials: mixed, familiar objects

Directions: Have boxes of familiar objects in boxes. Make available several boxes, each increasing in number. Child can count objects as he removes them one at a time from box and place on table. He can then count them as they are on the table, and count once more as he returns them one by one to the box.

Beginning with familiar objects of differing sizes, shape and color, and moving to objects that are identical. Also, keeping in mind that the progression of patterned organization of objects preceeds random organization.

Task #2

Activity A Materials: Boxes with identical objects

Directions: Same as in Activity A, remembering that this is a more difficult task as it deals with like objects.

Activity B Materials: Counting books (The counting books are made up by drawings of objects on each page. Sets of two, three, four, five would be in the same book. They would be arranged so that the counting task increased in difficulty, as explained in the stages, previously. One set per page).

Example:

Page 1 Page 2 Page 3 Page 4

Another book would be made up for sets from 5-10.

Page 1 Page 2 Page 3 Page 4

Directions: Child would take book to table or floor and practice counting objects on the pages in the book. Another child may work with him and the teacher will want to periodically check what new achievements she sees.

Compensatory Activities for Task #3

These children cannot handle the rational counting to 15. They may well have difficulty in the rote counting to 15. The rote counting will have to establish first, and then any activities for rational counting be incorporated into their program.

Activity A Materials: Boxes of familiar objects (ranging from 10-15)

Directions: Same as before only change is the increase of quantity.

Activity B Materials: Boxes of identical objects (ranging from 10-15)

Directions: Same as before

Activity C Materials: Counting book

Directions: Same as before

ORDINALS

Ordinal concept of number employs the use of the number names to arrange objects in order and to identify their place in a series.

Children should begin to realize that there are two uses for number, one to tell "how many" and the other to tell "which one," or the position within the set.

There are two ordinal ideas to be developed; the order of still or stationary items, like books on a shelf, or a line of children, where the child may begin either at the right or at the left; and when things are moving, like marching or a train passing by, the child sees the direction of the movement to determine the order and the point at which to start counting.

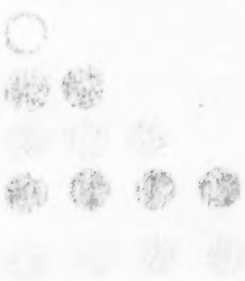
Opportunities for using the first five ordinals are frequent in young children's experiences. They learn early to value the status and privileges of "being first." "Second" and "third" come up often through games or naming turns. The teacher needs to extend their knowledge to "fourth" and "fifth," and relate the language of this order to that of the counting numbers.

DIAGNOSTIC TASKS FOR ORDINALS

Task #1 ORDERING NUMERALS

Materials: flash cards with numerals 1-5
5 sets of similar objects for arranging in order of 1-5

Example:



each set may be of a different color

Directions (A) Teacher has child arrange sets in order (does not matter whether they begin with 1 or 5 at this point as long as order is established).

Teacher then hands child the numeral cards and he places them next to the correct sets.

(B) Teacher asks child the following questions:

- What number comes before 2?
- What number comes before 3?
- What number comes before 5?
- What number comes before 4?
- What number comes after 1?
- What number comes after 3?
- What number comes after 2?
- What number comes after 4?

Compensatory Activities for Task #1

If the child has difficulty with items of Task #1, he is not yet capable of ordering the numerals. Opportunities for practice will be necessary.

(a) Hanging up Wash

Materials: piece of yarn
clothespins
set of numeral cards
set of pattern cards

Directions: Child places pattern cards in order on line. Then matches numeral card to pattern card. After matching, he removes the pattern card and replaces it with numeral card. Then says the numerals in order 1-5, this activity can be done with more than one child showing materials.

(b) Frog game

Materials: cut out picture or drawing of a frog
5 (rocks) circles with numerals 1-5 written on them

Directions: Teacher places rocks in random order on table (or flannel board). Child helps frog jump from rock to rock in numerical order.

Example:

(c) Roll the Ball

Materials: rubber ball
numeral cards 1-5

Directions: Small group of children in semi-circle on floor. One child sits in middle front facing group. Five children in group hold up a numeral. Child in middle rolls ball to child with the numeral 1, then to child with numeral 2, etc. Children exchange numerals and another child rolls ball.

Task #2

(a) Materials: 5 toy cars of differing colors

Directions: Teacher places cars in a straight line. She points to the "first" car on the left and asks child to count the cars starting with that particular one. After child counts the cars, she asks child:

"Which is car number one?"
"Which is car number three?"
"Which is car number five?"
"Which is car number two?"
"Which is car number four?"
If child does that successfully, she then says,
"Which is the first car?"
"Which is the second car?"
"Which is the fourth car?"
"Which is the third car?"
"Which is the fifth car?"
She notes carefully the ordinals which give the child any problems.

(b) Materials: blackboard and colored chalk

Directions: Teacher draws a row of 5 large boxes (squares) on the board:

She asks child to put a mark (child's decision as to what kind of mark--an "X" if child chooses not to make the decision) in the "second" box with the red chalk. Continue with:

"a yellow mark in the fourth box"
"a blue mark in the first box"
"a green mark in the third box"
"a purple mark in the fifth box"

Teacher then changes the order of the boxes from the choice the child initially made. If child started with left-right ordering, change to right-left. Give the same directions.

Compensatory Activities for Task #2

Children who have difficulty accomplishing task #2 will be those who have trouble with the labels "first, second, third, etc." Another problem area will be that of reversing the ordering.

(A) Children in a row (ordering in only one direction, left-right)

Five children stand in a row facing the child. Say to child: "John is first, who is second?" Work through row in order.

Have child name children and label position. "John is first." Then go through again, only in a random fashion. When child has mastered this, switch the order of children so that Mary is now first and John second. Repeat directions.

(B) Flannel Board

Materials: 5 flannel board cut-outs

Directions: Same as in activity A. Have child mix up the placement cut-outs each time. Two or more children can do this activity on their own.

(C) Familiar Stories

Materials: Pictures showing sequence of stories such as "Three Bears" or "Three Billy Goats Gruff"

Directions: Teacher reviews the story. Child looks at sequence pictures, arranges in order and tells which comes first, second, third, etc.

Teacher puts sequence pictures in random order and child points to the first, second, etc.

(D) Room Furniture

Materials: Windows, chairs, tables, etc.

Directions: Child shows and verbalizes which window is first, second, etc. Which table is first, second, etc.

(E) Lining Up (Activities A, B, D, can be repeated now--using reverse order)

Teacher selects five children to line up at door, or fountain, or desk, etc. "Jack, you be first, Mary is second," etc. Children get in line as they are called. Teacher reverses order for returning to seat. (Jack would then be last or "fifth" to return.

(F) Ordering Children in Family

Teacher discusses with child the number of children in family. Who was born first? Child then names children according to birth order.

(G) Cubes, Beads, Blocks

Materials: 5 different colored cubes, beads and different blocks

Directions: (Beads and cubes) Children are instructed to string beads: (knot tied on left)

-put the red one on first
-put the yellow one on second
-put the green one on third
-put the orange one on fourth
-put the purple one on fifth

Then have child remove beads, seeing that in order to remove beads, the purple will come off first, the orange second, etc. He should verbalize this.

The same procedure with the colored cubes, only these are stacked up, and then taken down.

The unit blocks would follow same directions, only the largest one would be first put down and last to be picked up.

(H) Parade

Directions: Five children march in a line around room, at one point passing by child. He is to say who is first, second, etc. Teacher questions why Anne has to be first, why not last. Child needs to see that if the line is moving past him in just one direction, then that direction gives him a starting point.

(I) Train

Materials: Toy train

Directions: Teacher or another child moves a toy train in front of child. Child counts the cars the first time. When moved by again, in same direction, child describes the first car, second car, etc. Again, child must see that because the train is moving in one direction, the order is established for him.

CLASSIFICATION

From the earliest months of his life, a child is classifying the many things that make up his egocentric world: these things make him feel good, these do not; these are voices I know, these are not; these things taste good, these do not.

As they get a little older, and the world widens in scope, their attempts at classifying are rough estimates. Categories are large, unstable, all inclusive. His egocentricity leads him to classify according to his immediate needs. Later, the categories are smaller, more concrete, and show the use of realistic criteria.

An example of the changing conceptual levels in a young child, would be the concept of the animal labelled "dog." He discovers the label "dog" is given to an animal that has 4 legs and a tail. For some time, he may label all animals with 4 legs and a tail, a "dog." As he begins to distinguish dogs from other animals by noting their particular characteristics, he will label only varieties of this particular animal as "dog." At a later period, he will discover particular qualities among the various breeds of dogs, and begin to label them as "collies," "cocker spaniels," etc. When he first reaches this last level, he will not be able to reverse these subcategories under "dogs."

Classification enters into all aspects of the child's intellectual development. It is a process of logical thinking. Among all of his world's many stimuli he must begin to sort out their particular relevance to him. Words, sounds, actions, reactions, etc., are all things to order. Also in the area of mathematics, classification has its role.

It is necessary in the establishment of one-to-one correspondence, as the child must possess the ability to discriminate. All through a mathematics program for young children, classification is a necessary underlying factor. (Distinguishing instances of three from instances that are not three--numerals that symbolize five--objects that are round--what is heavy.)

Classification facility improves as the child gains in age. Flavell[4] interprets Piaget's explanation of the three stages of classificatory development as the following:

Stage I (2 1/2 - 5 yrs. old) "Graphic Collections"

In this stage, the child tends to organize materials into "figural-collections." The observable behavior shows: (1) his attempt is relatively planless. It is a step-by-step affair in which criterion is constantly shifting, and (2) the collection is not a logical one, but a complex figure. Part of the collection may be based on similarities.

Piaget says there is no evidence of a superordinate involved at this stage, a superordinate being the powerful distinguishing factor that separates members of a group from non-members.

The child runs into difficulty in making genuine classes for two main reasons:

(1) inability to differentiate between logical and infralogical groups

(2) cannot differentiate or coordinate class comprehension and class extension

class comprehension - (sum of qualities which define membership in a logical class)

class extension - (the sum total of objects which possess these criteria)

In genuine classification, these two class properties must always be in strict correspondence. The definition of the classification basis determines precisely which objects must constitute its extension, and the nature of the objects in a given collection places tight constraints on the definition of the class they together form. For the young child there doesn't seem to be any correspondence. For example:

He begins to construct by putting squares together, but he does not include all squares, or he contaminates his collection with non-squares. The extension he does wind up with frequently is not a class but an infralogical whole, and, therefore, takes him out of logical classification altogether.

Given various collections of items to classify "put things together that go together" he generally will be content to inspect each item individually, then place it along with the others in one continuous row. He may put like ones near each other, but does not separate groupings. He may make a "house" or "train" with the items and in doing so, will ignore items not needed in his "house" or "train."

Formanek and Morine did extensive research in the area of classification responses. They have three responses that could be placed under Piaget's Stage I:

(1) no visible interest in objects

(2) plays with interest - theme, no theme

(3) some categorizing - some playing

Formanek and Morine also found that with materials such as blocks, toy furniture, toy animals, responses were consistently toward the play level. Bartlett and Bruner found this true even of adults.

Stage II (5 1/2 - 7 - 8 yrs. old)

The child at this stage can form groups of objects on a similarity basis alone. He tries to assign every object to one or another subordinate group and can partition major groups into their constituent subordinate groups.

He does not seem able to grasp and keep constantly in mind the inclusion relationship between class and sub-class.

An example given by Flavell shows that a child working with the category of "flowers" is able to make sub-categories, but when questioned about whether he has more primroses or flowers, answered "primroses." It appears to be a matter of conservation of the original large category.

Some children will be unable to group objects on any basis; others can group by dealing with one characteristic and ignoring others; some can arrange objects in logical groups by using one or more characteristics simultaneously. Generally, 5 year olds can sort into logical groups, yet experience great difficulty in shifting criteria. They tend to base their groups on form or color.

Formanek and Morine list as responses at this level:

(1) Mainly categorizing--little play

(2) categorizing - pairs only - some sub-groups not relevant

(3) mainly categorizing - some errors

(4) categorizing to relevant criteria but changing criteria - sometimes not finishing.

The main things for a teacher to look for when observing a child at this stage, would include:

(1) What does the child use as a basis for classifying?

(2) Does he use more than one criteria?

(3) Does he carry through or change criteria in the middle or end?

(4) Is his performance consistent through several tasks?

(5) Can he be assigned to a particular stage?

Stage III - (8 - 9 yrs old)

At this stage the child appears relatively confident in what he is doing. He uses all the items and completes the classification using relevant criteria. This child will be able to keep in mind the class inclusion and class extension involved.

Observable behavior would include:

(1) categorizing all items

(2) sub categories that can be explained and reversed back to the original criteria

(3) categorizing across several dimensions

(4) categorizing follows a plan, where the child seems to anticipate the outcome

(5) some children may become interested in creativity of design although still showing the definite categories.

Diagnostic Task #1

Can He Form Logical Groups

Materials: 3 red circles
3 blue circles
3 blue squares
3 red squares

Directions: Teacher places items on table in random order. Asks child to "put the things together that go together."

Teacher watches carefully, observing whether child can make logical groups.

Example:

Child may alternate colors when making piles according to form. He may alternate shapes when making piles of color.

Compensatory Activities for Task #1

If the child is not able to sort into logical groups, he will need many opportunities to do so under the guidance of the teacher. He must begin with items that are clearly different and sort accordingly.

(A) Bolts and Nuts

Materials: 10 bolts (same size)
10 nuts (same size)
2 boxes

Directions: Teacher presents child with items mixed together. She asks child "to put all the bolts in one box and all the nuts in the other box." The main point here is that the child is able to make the distinction between the two items to be sorted and can follow through till all are exhausted. Later, this activity and those like it can be

handled by the child alone, although the teacher must check when he finishes to be sure the sorting is completed correctly.

Other materials that can be used:

forks and spoons
jacks and balls
rubber bands and paper clips
pegs and small beads

(B) Similar Activities--Using Materials of Same Type

Sample of materials that can be used

2 colors of beans (sort according to color)
2 sizes of rocks (sort according to size)
2 colors of buttons (color)
2 sizes of buttons (size)

Directions: Same as in Activity A. Teacher begins by directing, and then after child appears to handle well, she can allow him to do this on his own.

Diagnostic Task #2

Can He Change Criteria?

Materials: triangles: 2 red, 2 blue, 2 yellow) 1 big, 1 little in each color
circles: 2 red, 2 blue, 2 yellow)
squares: 2 red, 2 blue, 2 yellow)

Directions: Same as Task #1, but adding at the end of the first successful activity,

"Can you put these together in another way?" If this is done, and the criteria is not clearly observable, the teacher may ask the question, "How did you decide what to put in each group?" If the child can give a logical answer, then the teacher can ask, "Is there another way of grouping these?"

Examples of groupings at this level:

by shape alone
by color alone
by size alone
by shape and color
by shape and size
by size and color

Compensatory Activities for Task #2

At this level, the child must learn that other groupings can be made by a change in criteria.

(A) Grouping According to Size and Color

Materials: 3 large brown stones)
3 large white stones)
3 small brown stones) some rough, some smooth
3 small white stones)

Directions: Teacher asks child to group the stones according to size. After this is done successfully, have the child group according to color. Explain that it is another way of grouping the same things.

Other materials that can be used in practicing the same activity:

3 large red circles
3 large blue circles
3 small red circles
3 small blue circles

(B) Size, Color, Texture

Materials: Same as in Activity A

Directions: Same as Activity A, but adding a third grouping, texture.

The child will need many opportunities to practice these various groupings under the guidance of the teacher.

Eventually, after many practice sessions, the child will begin to decide for himself the criterion in his own order. The emphasis is on the several ways of grouping. After they begin to see these ways, they should have opportunities to experiment with using various criteria without supervision of the teacher.

CONSERVATION OF NUMBER

Children must acquire the concept of conservation of quantity before they can develop an intelligent understanding of number.

A child is said to conserve number when he realizes that the numerical equality between two collections of objects remains unchanged following a change in the spatial arrangment of the objects, provided no objects are added or taken away.

This ability to comprehend the principle of conservation is a landmark in the development of logical thinking. Prior to this achievement, the child's thought tends to be dominated by his perceptions.

Young children are not always aware of the fact that eight always equals eight. A row of eight cups stretched out in a longer row than eight spoons contains more cups, they may say, than the row of spoons.

Piaget describes three developmental stages for number conservation. He gives approximate ages for each stage.

Stage I (up to approximately 5 years)

Before Correspondence

Here the child makes no exact correspondence and no equivalency between sets. His evaluation takes place through global comparisons of the length of the sets in question.

Stage II (around 5 - 6 1/2 years)

Correspondence, but without lasting equivalency

This is a transition stage. These children can, without hesitation or error, make the one-to-one correspondence between sets. They see the equivalence when sets are in a line—one opposite the other--but when one set is rearranged spatially, they no longer believe the equivalency. When the visual correspondence is destroyed, doubt sets in. Spatial alterations appear to the child to affect the quantification of the element. For children at this stage, there is quantitative equivalence between two sets when there is one-to-one correspondence, but this correspondence is perceptual, or intuitive, thus involving a perceived contact between the corresponding elements. The perceived contact may be visual, auditory, or tactual. Because of this limitation, once the contact is no longer perceived, the correspondence ceases to exist for the child, and the only criterion for evaluating remaining to him is the global, spatial criterion of the previous stage.

Stage III (6 1/2 - 7+)

One-to-One Correspondence and Lasting Lasting Equivalency

It is clear that, for children in this stage once the sets have becom equivalent through one-to-one correspondence they remain so, irrespective of the arrangement of their elements.

(If the child is operating in Stage I, where he has difficulty in making one-to-one correspondence, he will need a great deal of work within this area before he

can be expected to go any further in number conservation. The concentration must be in the field of one-to-one correspondence, and, therefore, the stages of development in this area are given next. The entire area should be covered before returning to number conservation tasks.

Stage II children are generally within the 5 - 7 year old range and as it is a transition stage, it would be profitable to take these children through the diagnostic tasks of one-to-one correspondence to be sure they have this basic ability.)

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